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Microeconomics of Transformation in Poland

A Survey of State Enterprise Responses

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Managers are typically the inspiration and moving force behind change. Workers' Councils play at best a facilitating role. To get firms to make necessary changes, it is essential to change the incentive structure at the firm level.

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This paper is a product of the Europe and Central Asia Region. An earlier version of this report was distributed under the title, "Microeconomic Response to the Economic Transformation Program: Evidence from the Largest Polish SOEs" [State-Owned Enterprises]. Copies of the more recent paper (supported by the Research Support Budget under research project RPO 676-58) are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact Sina Husain, room H11-113, extension 37139 (September 1992, 42 pages).

State enterprise behavior and reform have emerged as key issues in the emerging market economies of Eastern Europe because of the size of the state manufacturing sector as measured by its share in GDP, exports, and tax revenues. The difficulties experienced by Polish state-owned enterprises (SOEs) in adjusting and responding to the new economic environment have led to fiscal imbalance, deteriorating portfolios of commercial banks, and burgeoning interfirm payment arrears.

Pinto, Belka, and Krajewski examine the economic and behavioral reactions of a significant sample of Poland's largest SOEs to the macroeconomic reforms introduced as part of the "big bang" in January 1990. They track the evolution of output, costs, and profits, and examine wage setting behavior, enterprise debt dynamics, and enforcement of the "micro" hard budget constraint by banks. They conduct a firm-level analysis of the export boom and its causes and document the evolving tax burden on enterprises. Their findings are based on a survey of 75 large SOEs in manufacturing during June 1989 – March 1991 — six months prior to and 15 months following the big bang.

Some of the main quantitative conclusions were:

- The high nominal interest rate on working capital (from 50 to 72 percent for the month of January 1990 alone) inhibited borrowing and motivated firms to pay off zloty loans, leading to a squeeze on working capital. The huge decline in real wages led to a demand shock, witnessed by rising finished goods inventories. Consequently, the initial, unexpectedly large, decline in output could be explained by a combination of nominal interest rate shock and standard demand considerations.

- High profits in 1990 were temporary, stemming

from inflationary gains on once-off inventory sales, devaluation gains on enterprise dollar accounts, and implicit input subsidies from CMEA trade.

- Banks were lax in enforcing creditworthiness, leading to an adverse selection problem marked by loans going mainly to "bad" firms.

- State-owned enterprises tend to be myopic, with considerable short-run pressure on wages that works to the detriment of restructuring investments essential for reducing energy and material intensity and product redesign.

- Nominal and real wages both displayed remarkable flexibility. Employment reduction has lagged output reduction partly because partial indexation of wages to inflation has kept real wages low and partly because of the natural reluctance of worker-controlled SOEs to shed labor. So, there is clear possibility of much higher transitional unemployment once privatization and commercialization get underway on a large scale.

- The hard-currency export boom in 1990 was motivated more by slack domestic demand than higher export profitability.

The main qualitative change is a definite attitudinal shift in favor of profits and marketing in contrast to the old exclusive emphasis on production targets. But there is a serious principal-agent problem, with managers serving at the pleasure of the workers' council and no obvious owner stressing long-term viability considerations in decisionmaking.

The paper concludes by discussing the microeconomics of transformation needed to complement the largely macroeconomic big bang. The importance of addressing firm-level managerial incentives and empowering managers is emphasized in the transition to eventual privatization.

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**MICROECONOMICS OF TRANSFORMATION IN POLAND:
A SURVEY OF STATE ENTERPRISE RESPONSES(*)**

**Brian Pinto, Marek Belka and Stefan Krajewski
June 1992**

The views herein do not represent official views and are not necessarily shared by the World Bank and affiliated institutions.

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Glossary of Terms

1. Profit II or Pre-tax profit ("wynik finansowy brutto") = Sales + Other Income - Cost of Sales - Turnover tax + Balance of extraordinary gains and losses
2. Other Income = subsidies + income from sales and leasing of assets
3. Net Sales = Sales - Turnover tax.
4. Balance of extraordinary gains and losses ("net extraordinary gains") are mainly devaluation gains on dollar accounts (late 1989) and penalty interest on interfirm credit arrears as well as arrears to banks and tax arrears to the budget.
5. Underlying Profitability = (profit II - other income - net extraordinary gains)/Net Sales.
6. Net income = profit II - corporate income tax.
7. Disposable cash = net income - dividends + depreciation.

Other Notes

1. Excess wage tax is also called "popiwek" or by its acronym, PPWW.
2. Quarters are indicated by Roman numerals, e.g., 1990:IV is fourth quarter, 1990.
3. SOE is "state-owned enterprise".

(*) Brian Pinto is at the World Bank. Marek Belka and Stefan Krajewski are Professors of Economics at Lodz University, Poland. A first version of this report, which contains the findings of a quantitative study of 75 large Polish SOEs supplemented by manager interviews, was distributed under the title "Microeconomic response to the Economic Transformation Program: Evidence from the largest Polish SOEs" in September 1991. World Bank funding from the Europe and Central Asia Region and from Research Administration under RPO#67658 is gratefully acknowledged. The inspirational guidance of Stan Wellisz, the help and advice of Anna Krajewska and the excellent research assistance of Robert Sierzej were indispensable in producing the report. The support and guidance of Ian Hume and comments from Luca Barbone, Tim Lane, Ulrich Thumm and Sweder van Wijnbergen are gratefully acknowledged.

INTRODUCTION AND BACKGROUND

Two years into the Economic Transformation Program, the Polish economy is in a state of deep crisis traceable largely to the SOE sector. The euphoria accompanying the exceptionally good performance in 1990 has vanished along with the factors that facilitated it: once-off inventory sales, the cushioning effect of carried-over dollar retention accounts and implicit subsidies from CMEA trade. The 1991 collapse translated into an immediate fiscal deficit and led to an increase in nonperforming bank loans, a problem which now threatens to turn into a crisis, while the linkage of inter firm arrears has raised the specter of a generalized collapse. Enterprises have reputedly failed to adjust, stalling growth and delaying the "supply response", thereby calling into question a fundamental point of design in the ETP: that macro stringency alone would suffice to press firms into spontaneous adjustment measures. Understanding how macroeconomic policy has impacted the behavior of enterprises is critically important for the ongoing design of economic policy in Poland. This study has tried to illuminate this "macro-micro" linkage.

"Supply response" does not necessarily connote an immediate jump to higher profitability or output levels. Given the initial conditions of overstuffed SOEs - socialist Poland had zero unemployment - and high energy and material intensity owing to implicit input subsidies from CMEA trade, supply response could be expected to include resource re-allocation through bankruptcy, declining output and employment and even falling profitability. Therefore, this paper concentrates on the behavior pattern of SOEs to gauge whether there is movement towards a market economy in the sense of profit maximizing behavior and the enforcement of hard budget constraints by banks, crucial for resource re-allocation, among other issues. Data covering the 21 months June 1989 - March 1991 drawn from a direct survey of 75 large SOEs are used to illuminate key aspects of enterprise behavior and performance: (a) Was the sharp initial contraction of output due to enterprise monopoly power? (b) What was the impact of the demand barrier and credit squeeze on the January 1990 output drop? (c) Did the fixed exchange rate in fact function as a nominal anchor for prices? (d) What role did banks play in resource allocation? Did they enforce the "hard budget" constraint? (e) How did the wage setting process respond to the incomes policy and tax on excess wages (PPWW)? Was there evidence of decapitalization? (f) What accounted for the export boom in 1990, higher profitability stemming from the devaluation of the zloty, or as claimed by enterprises, the domestic demand barrier? (g) How has the tax burden on enterprises evolved over time?

SOE manufacturing, the biggest subset of socialized industry, accounted in 1990 for some 30% of GDP, 19% of employment, 85% of exports and 60% of fiscal revenues. The sample examined here is from SOE manufacturing. Annex I describes the sample, consisting of 75 large firms drawn mainly from the 1989 LISTA 500 (the largest Polish firms), using sales as the criterion, and covering five manufacturing sectors - metallurgy, electromachinery, chemicals, light manufacturing (textiles, leather goods, garments) and food processing.

The included firms typically employed 1500-6000 workers, though some exceeded 20,000, and had annual sales of \$ 100 million or more. Products include pipes, rails, metal sheets, wire; machine tools, transformers, electric engines, railway carriages, refrigerators, bicycles; fertilizer, plastics, organic and inorganic chemicals; fabrics, clothes, hosiery, shoes and leather goods; meat products, sugar, processed fruit, chocolate, cigarettes. At the time of the study, the vast majority of the sampled firms were traditional state-owned enterprises with powerful workers councils, two (or more) trade unions and managers legally subordinate to the workers council. A handful were joint-stock companies with sole ownership of the state, resulting in abolition of workers councils and freedom from the dividend tax. The enterprises were located all over Poland, both in the big industrial centers (Upper Silesia, Krakow, Warsaw, Wroclaw, Poznan) and smaller cities (South-East Poland, Szczecin, Torun, Bydgoszcz, Radom, Piotrkow and many more).

By and large, the output, profitability and employment trends of the sampled firms conform to economy wide patterns observed in aggregate data. However, the **main contribution** of this paper is the examination of the microeconomic issues enumerated above, which requires firm-level information. In particular, the emphasis is on the behavior of large SOEs, on which the fortunes of the state budget have critically rested.

While the focus on a non-random sample of large SOEs may seem constraining, it is in fact valuable for the following reasons: (a) these firms account for a large part of economic activity; (b) large SOEs embody many of the more complex adjustment problems witnessed in transforming the manufacturing sector, partly because of their size, partly because of their bargaining power; (c) there are obvious demonstration effects associated with large SOE behavior, that will not only influence the responses of smaller SOEs, but also affect the credibility of the ETP. Thus, if the government is seen as refusing to make arbitrary concessions to large SOEs, this will give smaller firms a clear signal that the new rules of the game are going to be enforced. Lastly, it is probable that the variance in behavior in the population of large firms is low.

The sample findings on adjustment are used in the concluding section to suggest specific ways in which the predominantly macroeconomic focus of the ETP can be complemented by suitable microeconomic measures to speed up attainment of a market economy.

OUTPUT AND PROFIT RESPONSE TO THE ETP

This section looks at output, profitability and cost evolution from late 1989 to the CMEA shock in early 1991. Some of its main conclusions are:

(i) The sharp contraction in output at the start of the ETP can be explained by standard demand considerations and partly by the reluctance to borrow following the huge jump in interest rates, which led to a squeeze on working capital that constrained output. There is no evidence from the sample of the exploitation of monopoly power by firms.

Metallurgical firms, which fit the common perception of being monopolistic, actually maintained output in January despite falling profit margins. Electromachinery firms cut back output, but were heavily burdened by cost increases and rising interest costs.

(ii) A popular myth about SOEs is that interest rate increases had no impact because zloty debt was wiped out by the hyperinflation of end 1989. To the contrary, the high nominal interest rates of first quarter 1990, which applied to the entire stock of loans, old and new, added a severe debt service burden for those firms having to rely on bank loans.

(iii) The latitude for using "cost plus constant mark up" pricing rules was quickly reduced over 1990, suggesting that while inflation was initially partly cost push, it was eventually constrained by international prices in conjunction with the exchange rate anchor.

(iv) Firms had not undertaken serious cost cutting measures over the survey period.

Evidence in support of the above is now presented.

Output trends

With the launching of the ETP, some decline in manufacturing output (measured in Polish statistics by real sold production or sales) was anticipated because of the intended deflationary impact of the stabilization program. It was also felt that the drastic realignment of relative prices

would lead to some shrinkage of heavy manufacturing given its excessive energy and material intensity relative to international levels. What was surprising was (a) the magnitude and immediacy of the drop, 19% in January 1990 and a further 15% in February, and (b) its composition, with light manufacturing and consumer goods sectors declining faster and earlier and the heavier sectors following suit only later.

Sample data mimic aggregate manufacturing trends: in the firms sampled, real sales fell by 15% in January 1990 and another 15% in February (Fig. 1 and Annex V), thereafter continuing on a downward course until July. At the same time, finished goods stocks grew, suggesting some demand resistance (Fig. 2 and Annex V). Sectors that did relatively well in January 1990 - metallurgy, chemicals and food processing - declined somewhat faster upto mid-1990. This initial stabilization period (Fig. 1) coincided with high savings rates, completely unanticipated fiscal and trade surpluses and significant erosion of real wages, reducing aggregate domestic demand. Sales picked up between August and November, coinciding with lower interest rates, increased consumer spending and the simultaneous using up of the fiscal surplus and unutilized margin under wage indexation from the first half of 1990 ("macro loosening", Fig.1, which began to be strongly reversed towards end-1990 as inflation picked up and the trade balance worsened). But output fell in December, in contrast to the year-end spurt to fulfil plan targets associated with pre-ETP years and continued to fall in first quarter 1991 with the collapse of CMEA trade. This market loss effect was accompanied by the elimination of CMEA subsidies on inputs and a big fall in real wages, indicating a simultaneous demand and supply shock. The electromachinery sector in particular was hard hit owing to its energy and material intensity plus dependence on CMEA markets.

Mirroring declining sales, finished goods stocks (as a percentage of sales and in absolute terms) displayed an erratic but upward trend, rising marginally in January 1990 and then sharply in February (Fig. 2 and Annex V). There was a marked increase in first quarter 1991 following the CMEA shock, especially in electromachinery, chemicals and light manufacturing. Interviews with managers indicated that electromachinery firms kept producing hoping that the CMEA sales impasse would be politically resolved; chemicals firms found it increasingly unprofitable to export following the squeeze of margins resulting from the combination of dollarized CMEA energy and input prices and fixed exchange rate; and the light sector (textiles and leather) was unable to sell as a result of a severe deficiency in marketing skills and export barriers to the EC and other prized markets.

The sample data can be used to understand better the sharp initial contraction of output, which has been variously attributed to exploitation of monopoly power (raise price, lower output); liquidity squeeze owing to credit ceilings and high nominal interest rates; and inadequate aggregate

Figure 1

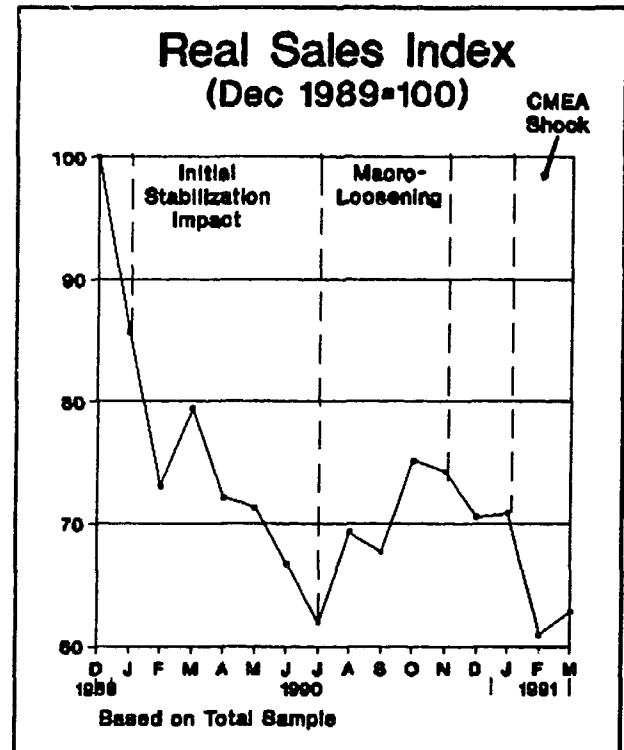
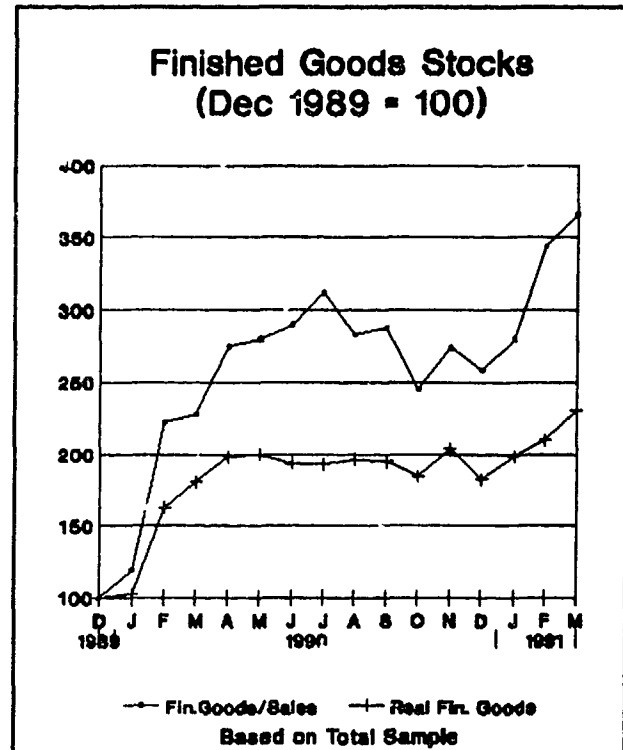


Figure 2

demand, the so-called "demand barrier", resulting from the sharp drop in real wages and the erosion of real balances caused by the hyperinflation of 1989.

January 1990 involved a big increase in energy and transportation prices and a more than threefold increase in interest rates, NBP's refinancing rate jumping from a monthly rate of 10.5% for December to 36% for January. Firms reported being charged between 50% and 72% in working capital interest for January for the entire stock of loans, not just new borrowings. Managers reported a rush to repay zloty loans with dollars from enterprise retention accounts in early January: for the sample, dollar deposits fell from \$ 110 million at the end of 1989 to \$ 54 million at the end of January, while zloty loans (working capital plus investment) rose in nominal terms only by 18% despite PPI inflation of 110% for the month.¹ Economy-wide, enterprise sector working capital credits fell in nominal terms from zloty 19.9 trillion at the end of December to zloty 19.4 trillion at the end of January, indicating reluctance to borrow owing to the price of credit (interest rate), rather than limited quantity (binding credit ceiling). Standard reasoning would compare the rate of PPI inflation in January (110%) with the interest rate (50-72%), conclude that real interest rates were vastly negative, hence firms must have wanted to borrow, hence the credit ceiling must have been the binding constraint. However, this does not square with firm behavior, which led to the rapid repayment of zloty credits, indicating that firms did not want to borrow and were responding to the nominal interest rate. It is noteworthy that not a single manager complained about liquidity or lack of credit in the early months of the ETP; but the interest rate and demand barrier were invariably mentioned.



The conventional view that only the real interest rate matters amounts to saying that managers compare the nominal interest rate with inflation and have an incentive to borrow so long as inflation exceeds the interest rate. However, managers' assertions that they looked at the nominal interest rate is not naive when viewed in the context of an individual firm. The crucial point is whether a given firm finds it profitable to borrow for working capital and produce at a specific nominal interest rate, not how this interest rate compares with the inflation in a general price index (such as the PPI). When formalized, this view suggests that managers compare the nominal interest rate with the profit margin over variable costs: if output prices rise faster than input prices so that margins are growing with inflation, it may pay a firm to "invest" in working

¹Repayment of zloty credits in early January is (a) rational because by waiting for Jan. 1, enterprises could extinguish 46% more zloty debt per dollar than on Dec. 31 owing to the (anticipated) devaluation; and (b) is consistent with some growth in zloty credits later in the month as the magnitude of operating cost increases became apparent.

capital and borrow more.² This also suggests that a firm that can more easily mark-up price over costs and pass through increased costs to the buyer is less likely to reduce output. Box 1 tests this view by reporting regression results based on 55 firms in the sample for which a complete data set was available.

Box 1: January 1990 Output Decline

Model:

$$\begin{array}{l} \text{Jan. real sales} = f(\text{Jan. mark up, interest/costs, Jan.}, \\ \text{Dec. real sales} \quad (\text{Dec. mark up interest/costs, Dec.}) \end{array}$$

or in shorthand:

$$\begin{array}{c} \text{RSRATIO} = f(\text{MRATIO, INTRATIO}) \\ \quad \quad \quad (+) \quad \quad \quad (-) \end{array}$$

where the expected signs are shown below the explanatory variables: ability to mark up and pass through costs (inelastic demand, low demand resistance) would encourage firms to produce more; while an increase in the share of interest in costs (low dollar deposits, greater dependence on bank loans) would discourage firms from borrowing and producing¹. Based on a log-log specification, the results were (t-statistics in parentheses):

$$\begin{array}{ccccccc} \text{RSRATIO} = & -0.0177 & + & 0.2089 & \text{MRATIO} & - & 0.1465 & \text{INTRATIO} \\ & (-0.18) & & (+4.10) & & & (-3.71) & \end{array}$$

$$\text{Rbar sqd.} = 0.28, \text{ S.E. of regression} = 0.32, \text{ F-stat} = 11.31.$$

¹ Mark up was calculated as (pre-tax profit - net extraordinary gains)/costs of sales, to eliminate the effect of inflationary gains on dollar deposits in Dec. 1989, thereby capturing mark-up over costs on the basic business of the firm.

As Box 1 shows, both elasticity of demand and interest burden were important in explaining January output decline. Since on average the interest share in costs grew by 23% compared to an average reduction in mark up of 90%, demand constraints were much more significant in explaining the drop in output.

What about monopoly power as an explanation of the initial contraction in sales? Metallurgical firms, commonly regarded as monopolistic, maintained sales and production in Jan. 1990 despite falling margins. Since there was no contraction in output, monopoly power as an explanation is irrelevant for this set of firms. Electromachinery firms suffered a big decline in sales; but were heavily burdened by cost increases and rising interest costs. The light sector (textiles and leather), widely regarded as non-monopolistic, suffered reduced sales and rapidly rising finished goods stocks (Annex V). Since the opportunity cost of holding inventories (the interest rate on working capital) was extraordinarily high, one would have to conclude that the stock accumulation was involuntary and that there was insufficient demand for what was being produced.

The regression results for January 1990 indicate the predominance of deficient demand in explaining shrinking sales, rather than supply-side factors such as a credit squeeze. The behavior of finished goods inventories (Fig. 2 and Annex V), which rose sharply and then declined in the

²Annex II presents this formally. In a steady state, with all prices growing at the same rate, it may not be bad to compare the nominal interest rate with inflation; but in a transition from a non-market to a price-based economy involving drastic relative price realignments, such comparisons could be misleading.

second half of 1990 as demand picked up and fiscal and monetary policy were eased, also suggests demand problems: in all cases (except food processing, which is highly seasonal owing to the concentration of production activity in the second half of the year), inventories at the end of 1990 were considerably higher than at the end of 1989. Managers universally complained about the demand barrier, but began complaining about liquidity only towards the end of the sample period in mid-1991, when slow sales and rising finished goods stocks began blocking cash flow, exacerbated by the collapse of the CMEA market. In stressing the gravity of the demand problem, however, it must be pointed out that neither the regression results nor the managers' assertions enable isolation of supply bottlenecks stemming from product quality and obsolescence problems. Further analysis is needed of supply bottlenecks, beyond the scope of the survey results presented here.

Profit and Cost Dynamics

Macroeconomic stringency and the nominal exchange rate anchor were designed primarily to halt inflation at the start of the ETP, but were also seen as a source of adjustment pressure on SOEs. Evidence on shrinking profit margins and changing cost structure presented below attest to several factors: (a) inflationary gains on raw materials were beginning to wear off as inventories were depleted, firms typically following historical, rather than inflation-based cost accounting; (b) firms were increasingly unable to follow "cost plus constant mark-up" pricing rules owing to the fixed exchange rate and import competition; (c) the exchange rate anchor was obviously beginning to bite with the inflation process approaching what one would expect in a small, open economy - prices being constrained by international parities rather than being driven by cost-push alone; (d) firms under pressure to make ends meet were resorting to asset sales and leasing; (e) cost cutting measures were not in strong evidence.

Underlying Profitability

Quarterly profit dynamics are presented in Table 1, which captures the ephemeral nature of 1990 profits.³ Metallurgy consistently displayed the highest profitability, until the first quarter of 1991, when it was overtaken by food processing. Initially, profitability in electromachinery was comparable to metallurgy; but it declined much faster, reaching bankruptcy levels by 1991:I with the CMEA shock. The chemicals sector witnessed a sharp decline in 1990:I, and then stabilized, collapsing following the dollarization of CMEA energy and raw materials prices in 1991:I. The collapse of the light sector came much sooner, in 1990:II. This sector was subject to immediate price competition from South East Asian and private, unrecorded imports. In foreign markets, this sector was handicapped by barriers in the US, EC and EFTA markets. Marketing expertise is also severely deficient, the combination of factors leading to underlying losses by 1991:I.

³Both net extraordinary gains, which behave erratically during hyperinflation, and other income (subsidies; leasing and asset sales) were excluded in order to focus on underlying profitability, which nevertheless reflects inflationary gains on stocks in the last quarter of 1989 and to a smaller extent in the first quarter of 1990. To eliminate the latter would require information on accounting practice, quantity of inventories and historical purchase prices, information not easily available. However, these effects may be disregarded after 1990:II. See Glossary.

Table 1. Quarterly Trends in Underlying Profitability

Sector	1989:IV	1990:I	1990:II	1990:III	1990:IV	1991:I
Metallurgy	37.8	35.8	28.5	20.2	12.9	16.5
Electromachinery	34.7	20.9	18.8	23.1	17.5	2.2
Chemical	31.2	18.7	16.6	13.0	18.8	8.9
Light	36.7	19.7	8.9	6.7	4.1	-2.0
Food	18.2	16.3	22.4	23.2	22.4	18.2

Note: Underlying profitability is underlying profit/net sales %. See Glossary.

Other Income

As Table 2 shows, other income (subsidies, but mainly asset leasing and sales) was significant in electromachinery and light manufacturing, helping to boost pre-tax profit in 1991:I. For the other sectors, except food processing, the trend was less pronounced or downwards.

Table 2. Other Income to Net Sales Percentage

Sector	1989:IV	1990:I	1990:II	1990:III	1990:IV	1991:I
Metallurgy	3.3	0.6	0.2	0.5	0.4	1.3
Electromachinery	5.1	2.4	3.5	3.6	1.3	9.8
Chemical	5.7	5.4	3.5	3.8	2.2	2.2
Light	2.6	2.7	2.6	2.7	3.3	7.5
Food	3.1	1.6	1.3	2.5	0.8	5.8

Cost dynamics

Figs. 3-7 capture underlying profitability and cost trends by sector for materials and energy, depreciation, interest and wage costs (wage bill x 1.65 to reflect taxes, social insurance, etc.), as a share of net sales:

- * the rapidly shrinking mark-up over costs (the clear portion of the bar charts) attests to two facts: (a) firms were unable to follow "cost plus constant mark-up" pricing rules; and (b) the exchange rate anchor was obviously beginning to bite. In short, the inflation process was approaching what would be expected in a small open economy, i.e., prices being constrained by international price parity, rather than being driven by cost-push alone.

- * the squeeze on value added (crudely, net sales minus materials and energy costs, i.e., everything except the darkly shaded portion of the bar charts) and profit margins is evident, indicating that firms were caught between the fixed exchange rate and rising costs, with no clear cost minimizing responses in evidence.

- * the loss of implicit CMEA subsidies is captured by the upward trend in materials and energy costs for the three "heavy" sectors, metallurgy, chemicals and electromachinery.

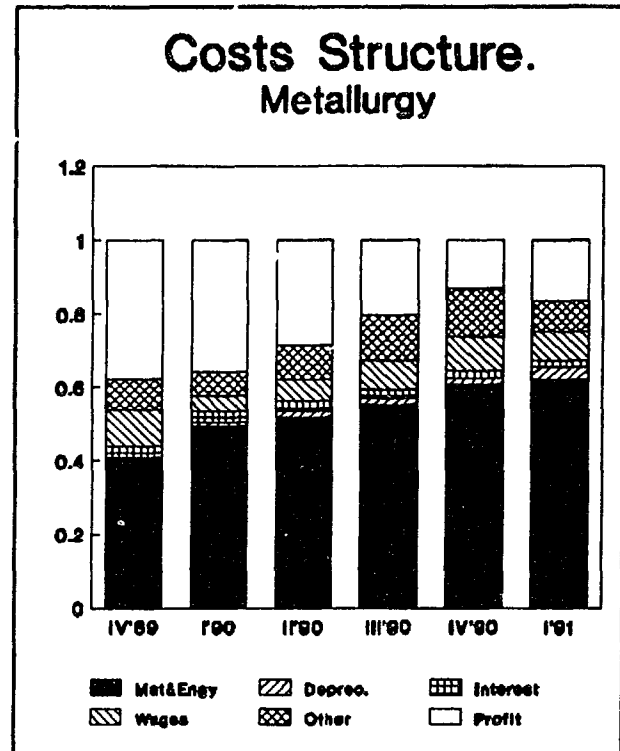
Figure 3

* the rise in depreciation charges following revaluation of assets by a factor of 11 in January 1990 and 2.9 in January 1991 is evident from the pictures.

* interest burden grew significantly for all sectors except metallurgy despite capitalization of interest.

* wages suffered some compression in 1990:I, partly absorbing the shock from higher materials and energy costs and higher interest. With value added collapsing, the share of wages in value added grew rapidly, especially in the labor-intensive light sector.

* although not depicted in the charts, sales fell in first quarter 1991 over last quarter 1990 in nominal terms for both electromachinery and light manufacturing (-15% and -4.4% respectively) following the collapse of CMEA trade.



Making use of the well-known fact that there was considerable slack in the exchange rate at the start of the ETP (the devaluation having been "excessive"), firms had more latitude in marking up prices over costs initially, with this disappearing as Polish prices reached international levels.⁴ This reinforces the view that monopoly price power may be a non-issue in Poland so long as import competition exists, and is captured by the example of the FSO car company, which in late 1990 was being asked by the Anti Monopoly Office to roll back price increases, but which by early 1991 was in deep trouble owing to competition from second hand car imports.

Enterprises may have undertaken cost cutting measures to preserve profits, but as the results of this section have shown, their effect was not great. This may not be surprising: any serious response to the change in input prices is going to involve significant investment to save on energy consumption, for example. The climate in SOEs and their horizon, which tends to be short, is simply not conducive to such effort and risk, a problem illustrated by adverse selection in the banking system - managers of "good" firms, the obvious candidates for restructuring investments, apparently do not want to borrow and most of the loans are going to "bad" firms, which are not likely to repay. This issue is pursued below in the section on DEBT DYNAMICS, with time horizon discussed in the section on wage setting.

⁴Discussions are contained in Pinto, Coricelli and de la Calle (1990), Wellisz (1991) and Rodrik (1992).

Figure 4

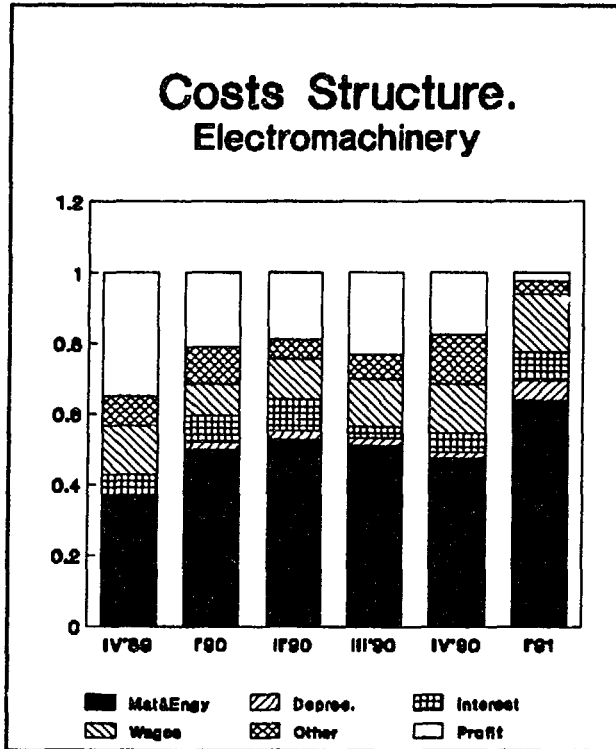


Figure 5

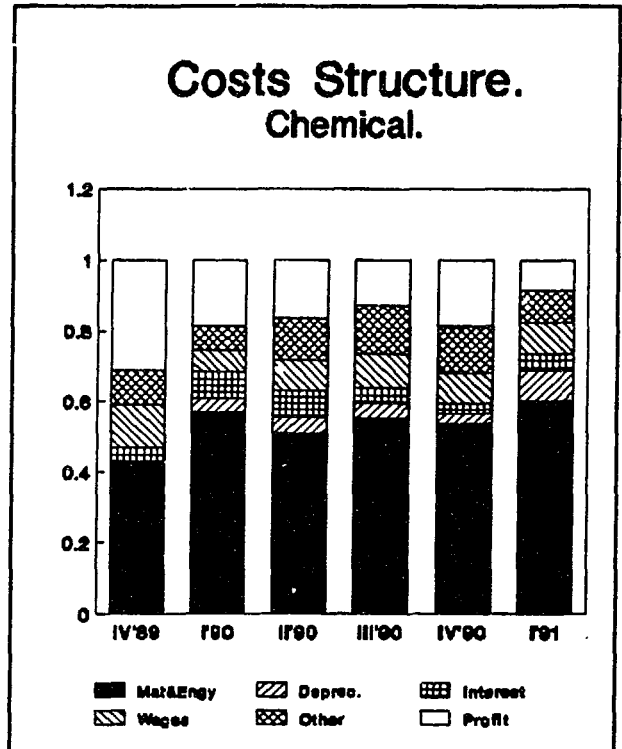


Figure 6

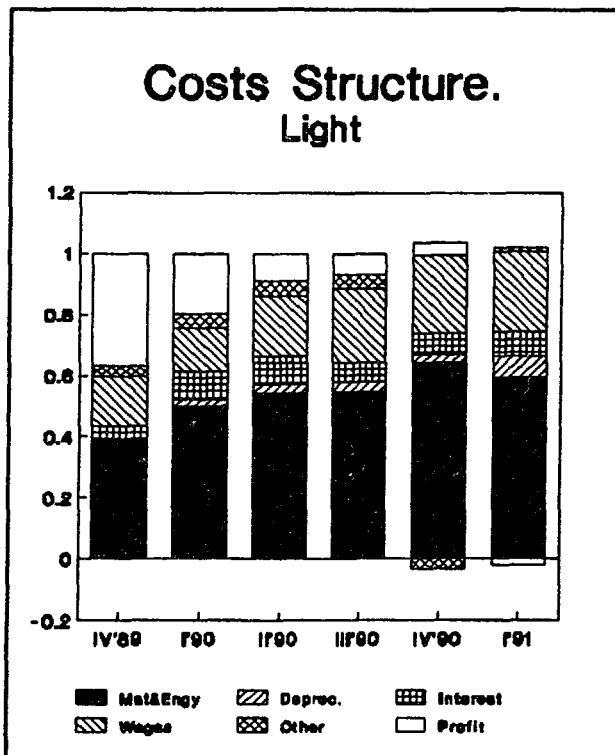
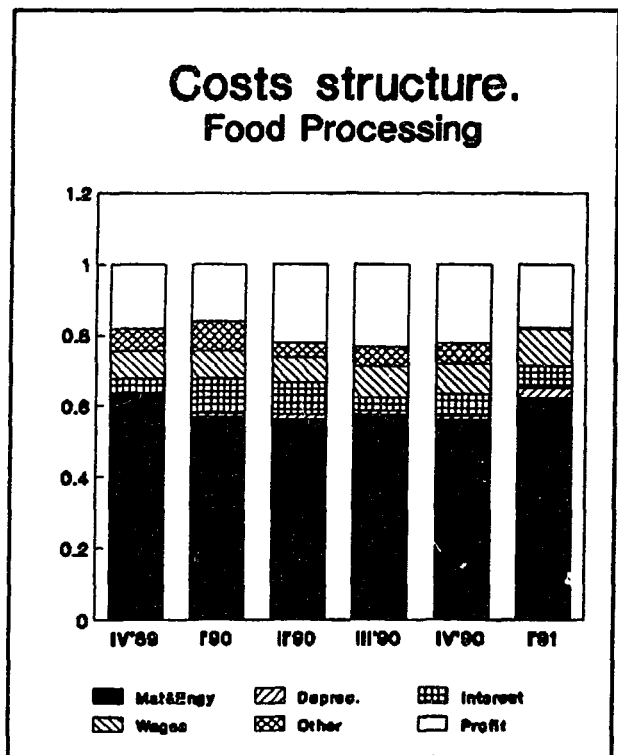


Figure 7



DEBT DYNAMICS: BANK LOANS AND INTER FIRM CREDIT

While in any market economy the banking function is crucial for efficient resource allocation, there are also other checks and balances such as might be exercised by owners and other creditors. In the Polish system of self-governed SOEs with little or no oversight function performed by the founding organs and ministries, the role of banks is even more critical. This section contains evidence on what firms and banks actually did, on the evolution of debt service and the pattern of bank intermediation in relation to an important sample of firms. It also discusses the record on enforcement of bankruptcy triggers such as non-payment of dividends. The key findings are:

- (i) Reluctance of profitable firms to borrow means banks are going to be saddled with the worst enterprises. There is a clear adverse selection problem with loans going mainly to firms in poor shape.
- (ii) Enforcement of bankruptcy triggers has been lax and lacks credibility.

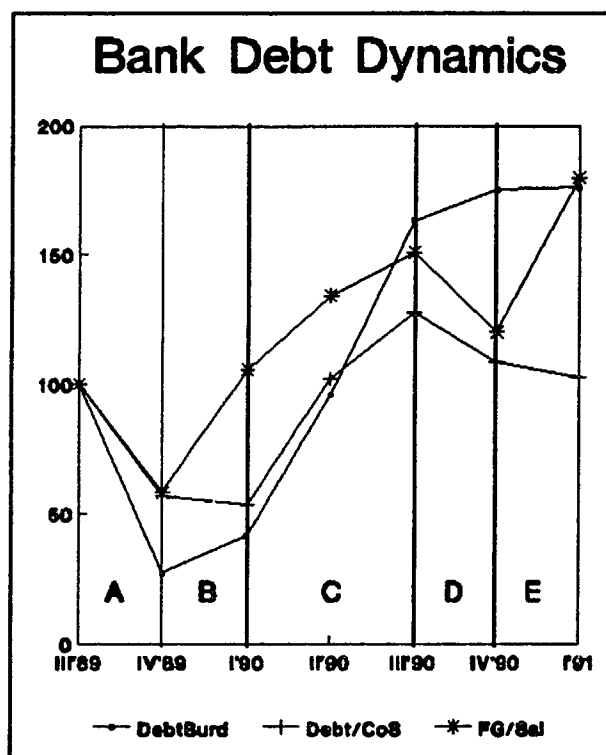
The evidence pertaining to the above findings is now presented.

Bank loans

Fig. 8 captures the big picture based on the sample from the third quarter of 1989 to the first quarter of 1991. It contains three graphs. The first, labeled "DebtBurd", portrays a measure of debt burden (average bank debt divided by sales proceeds minus all non-financial costs, or equivalently, pre-tax profit plus interest). The advantage of focusing on the stock of debt rather than actual interest paid is that this eliminates any bias caused by a reduction in interest due through interest capitalization, which was widespread over the sample period. The second graph, "Debt/CoS", captures dependence on banks for conducting operations (bank debt / cost of sales, or bank debt per unit of operating costs). The third graph, "FG/Sal", is a demand indicator, picking up ability to sell (finished goods/sales %).³

Five phases may be distinguished in Fig. 8: (a) debt erosion as a result of the hyperinflation of 1989; (b) cushioning effect of dollar deposits in first quarter 1990, when debt burden stayed within moderate levels despite the big interest rate shock; (c) rising trends in all three indicators over the first three quarters of 1990, with a particularly sharp increase in the debt burden; (d) an improvement in the fourth

Figure 8



³Average debt is the average of monthly debt, defined as beginning plus end of month debt divided by two. Firms reported the sum of investment and working capital credits.

quarter of 1990 following the slight economic recovery towards the end of the year; (e) the CMEA shock, leading to a sharp rise in finished goods stocks, yet a levelling off in debt burden and a slight decline in the debt/costs ratio owing to the jump in costs and stringent credit controls in first quarter 1991.

To examine bank debt dynamics, a pooled time series-cross section regression was run for 50 firms on which complete data were available for the seven quarters 1989:III-1991:I (350 observations). The idea was to obtain evidence on what determined the increase in bank debt service burden: if loans were going to creditworthy and profitable enterprises, one would not have expected the trends portrayed in Fig. 8. Box 2 summarizes the regression results.

Box 2: Bank Debt Dynamics 1989:III - 1991:I

The following specification was used (COSTS refer to costs of sales (materials, energy, labor, interest, overheads), NET PAYABLES to payables minus receivables on inter firm credit):

$$\frac{\text{DEBT}}{\text{COSTS}} = f\left(\frac{\text{NET PAYABLES}}{\text{COSTS}}, \frac{\text{PRE-TAX PROFIT} + \text{INTEREST}}{\text{SALES}}, \frac{\text{FINISHED GOODS}}{\text{SALES}}\right),$$

or in short form:

$$\text{DCOST} = f(\text{NPCOST}, \text{P2ISAL}, \text{FGSAL}).$$

The above specification is neither a demand nor supply function for credit, only an attempt to find out what variables the growth in bank credits were the most strongly associated with. The following results were obtained (t-statistics in parentheses):

$$\text{DCOST} = -0.0533 \text{ NPCOST} - 0.3414 \text{ P2ISAL} + 0.3274 \text{ FGSAL}$$

(-0.78) (-3.77) (+3.59)

$$R\text{bar sqd.} = 0.48, \text{ S.E. of regression} = 0.27, \text{ Autocorr. of error} = 0.15.$$

It can be seen from Box 2 that while net payables has the right sign, (firms substitute inter firm for bank credit), it is statistically insignificant. However, profitability and finished goods stocks are significant with signs indicating a soft budget constraint. Essentially: (a) either banks do not lend to profitable firms, or more likely, such firms are reluctant to borrow, preferring to rely on their own surpluses; (b) debt is rising fastest where firms are unable to sell, as captured by rising finished goods stocks. Moreover, the elasticity of debt (at mean values) with respect to profitability was - 0.24, while that with respect to finished goods stocks was + 0.09, indicating that profitability was more significant.

These results signal a serious adverse selection problem in the banking system. Obviously, any scheme for debt relief will have to be very competitive and be linked to marketing and business plans of firms.

The possibility that good firms may not want to borrow squares with interviews: when asked why Polish firms do not actively seek low cost foreign credits (illustrated by the sluggish offtake of World Bank lines of credit) managers expressed unwillingness to assume additional risks and cited: (a) the reluctance of Polish banks and GOP to provide guarantees; (b) exchange risk; and (c) the strict requirements of foreign lenders, who usually require that consultants

screened by them be hired for project evaluation. Often, the recommendations of the consultants are painful, e.g., drastic reduction in employment. The manager - Workers' Council - trade union triangle does little to help the situation, with accountability ill defined and managers not willing to take chances on loans and restructuring programs when their own jobs are insecure. The lack of accountability and incentive is clearly a serious problem and is bound to impede restructuring.

Inter firm Credit

The regression results in Box 2 indicated that to some extent, inter firm arrears are a substitute for bank loans. Normal payment terms in Poland are two weeks after delivery. Thereafter, interest is calculated on the basis of a penalty rate, which is officially determined and which far exceeds the bank rate on working capital. However, firms are permitted to legally make side deals on payment terms. Inter firm credit has two further advantages: payment enforcement is much more difficult than for banks, which can freeze accounts; and penalty interest on inter firm arrears is tax-deductible.

Managers did not complain of inadequate bank credit, more that nominal interest rates were too high. This is particularly true of exporters, for whom ex post real interest rates were extraordinarily high owing to the fixed exchange rate. Managers indicated a distinct preference for suppliers' credits, revealing that suppliers tended to be understanding about payment delays - not surprising in view of slow sales! Only towards the end of first quarter 1991 did the liquidity crunch assume serious proportions, with the root cause being slow sales, hence rising finished goods stocks and cash flow problems.

Bankruptcy triggers

At first, the only bankruptcy trigger during the FTP was non-payment of the dividend (a misnomer for an asset tax levied on the share of the founding fund contributed by the government in total enterprise assets) for three months. This was extended in September 1991 to cover any tax arrears to the budget exceeding three months. Contrary to expectations, no bankruptcies materialized during 1990 and none of the enterprises in the sample was under threat of bankruptcy during the survey period. However, some managers candidly admitted that by western standards, their firms would have been declared bankrupt, even though Polish banks had no difficulty with their credit standing. What happened beyond the survey period is not known. However, some information was obtained from the Ministry of Industry and Trade (MOIT) regarding restructuring and liquidation efforts. Based on this information, described in Annex III, the will and capability to enforce bankruptcy is suspect. The following observations may be made based on Annex III:

- (i) There is no early warning system. Only when the enterprises are in obvious difficulty, encountering serious liquidity problems, do they come to the attention of the Ministry.
- (ii) Banks appear to be slow in declaring enterprises uncreditworthy, the number of firms regarded as being in difficulty by MOIT far exceeding those declared uncreditworthy by banks. This points to a weakness in the banking system as well as to a possible softening of the budget constraint, confirmed by the econometric evidence above.
- (iii) Actual liquidations on account of poor financial condition have been negligible so far, only two to date. Most liquidations so far have been in connection with privatization.

(iv) Given the rapidly deteriorating situation of enterprises, the period of three months of nonpayment of budgetary dues before MOIT will consider restructuring or liquidation is too long.

INCOMES POLICY AND FIRM-LEVEL WAGE SETTING AND EMPLOYMENT

Incomes policy in the form of partial indexation of wages to inflation enforced by a punitive excess wages tax (PPWW) has been an integral and controversial part of the ETP, with the following objectives:⁶ (a) inflation control; (b) real wage reduction and control; (c) efficiency, preventing decapitalization and being a counterweight to wage pressures, a proxy "advocate for capital".

Based on sample evidence, the main findings were:

- (i) SOEs tend to be myopic as indicated by the willingness to pay large sums as PPWW, which could be used for restructuring and new product development; and by the tendency to use up surpluses at year-end, showing willingness to accept low initial wages but expecting compensation as the size of the surplus becomes clearer.
- (ii) There was a small but statistically significant credit-wage link (more borrowing translating into higher wages) which could easily strengthen as enterprise profits decline.
- (iii) There is reluctance to fire workers and an apparent preference for taking pay cuts instead. Managerial perceptions are that employment reduction has been insufficient and will speed up as commercialization and privatization pick up.
- (iv) Wages are determined by gross value added (disposable surplus), banks credits and the indexation norm. PPWW is treated as just another cost, to be borne if affordable.
- (v) Decapitalization was unimportant in 1990, but became more apparent towards the end of the sample period and could become more serious as time passes.

Evidence in support of the above conclusions is now presented.

Wage setting

Based on economy-wide, aggregate data, real wages fell precipitously in Jan. 1990, the first month of the ETP. Nominal wages barely moved despite 80% inflation for the month. Two competing explanations have been offered: (a) indexation: the wage norm under indexation was binding; (b) liquidity squeeze: nominal wages were compressed to accommodate the nominal interest rate shock as well as rises in the prices of energy and raw materials following huge administered price increases in electricity, gas and transportation.

Subsequently, real wages remained low, but grew rapidly in the second half of 1990. Nominal wages exceeded the cumulative norm only in the fourth quarter of 1990, making the PPWW a significant source of tax revenue. This development is often attributed to the loosening of credit policy and lower interest rates in the second half of 1990.

⁶Annex IV contains a brief description of incomes policy during the ETP. More details may be found in Blanchard and Layard (1991).

In 1991, real wages fell initially because most firms were in excess of the norm wage for December 1990, which formed the basis for the Jan. 1991 wage norm. Further, wages were restrained by severe compression of margins following the CMEA market collapse and dollarization of trade, which led to a large and abrupt decline in sales and a sharp rise in costs.

The evolution of firm-level wages conforms to the general pattern observed in aggregate data. January 1990 wages were very close to the forecast wage norm (norm based on forecast inflation of 45% for January, which was announced in advance; actual inflation turned out to be 80%) as Fig. 9 confirms. This suggests that the forecast norm was indeed binding; but must be carefully interpreted. This is because December 1989 wages were already close to the forecast January norm, so that a wage freeze in January motivated by the more than three-fold jump in monthly nominal interest rates and huge increase in energy prices could be wrongly interpreted as a pull towards the forecast norm. In fact, the sample information shows that wages were more or less frozen in January (reduction of 2.2% for sample) and were 95% of the forecast norm. With the exception of metallurgy, the other sectors were all below the forecast norm. Light manufacturing recorded a 12% wage increase, yet was 5% below the norm;

chemicals had an 11% wage cut bringing it 7% below the forecast norm. At the same time, interest burden (share in costs) more than doubled in Jan. 1990 over Dec. across the board (with the exception of metallurgy), while wage cost share more than halved.

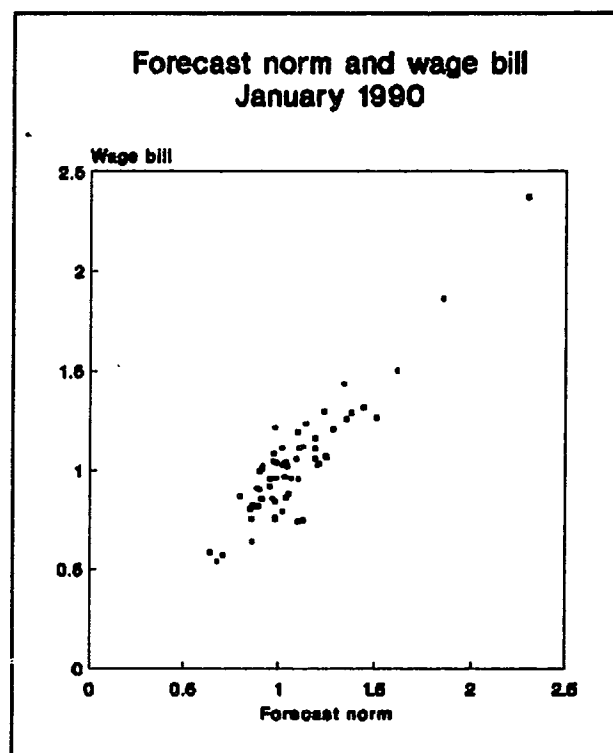


Figure 9

Managers variously attributed the Jan. 1990 wage restraint to the interest rate increase, which led to a rush to repay zloty credits, reducing liquidity; to the fear of bankruptcy and willingness of workers to "pay the price" for reform in support of "their own" (Solidarity) government; time lag for workers to feel the pinch of the real wage decline (somewhat surprising given 80% inflation for the month); stringency of wage indexation norm; seasonal decline of January wages, being sandwiched between high increases in Dec. and prospective bonus payments in February.

What about wages in subsequent months? Figs. 10-14 plot the graphs, by sector, of the cumulative norm and wage payments for 1990. Metallurgy was always close to the norm and exceeded it early, in March 1990. The gap between actual and norm wages then progressively widened. Food processing exceeded the norm around June and the gap then widened. Electromachinery and chemicals conformed to the pattern showing up in aggregate data, namely, the norm was exceeded only close to the last quarter. Light manufacturing was never close to the norm except at the beginning of 1990 and always below it thereafter, with the shortfall widening over time. The contrast between metallurgy (high) and light (low), which were at the two ends of the profitability spectrum (Table 1 above), brings out the positive relation between profitability and exceeding the norm; while the different time points at which the cumulative norm was

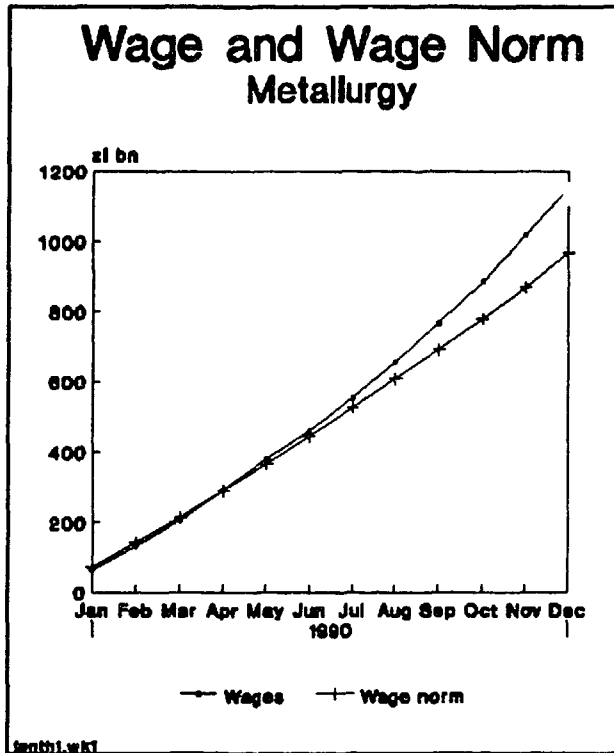


Figure 10

exceeded (Figs. 10-14) suggest that both profitability and the relaxation of credit and interest rate policy in the second half of 1990 played a role.

The role of profits and credits is captured by the specification: $wages = f(\text{cumulative wage norm, gross value added, increase in credits})$, where gross value added is approximated by pre-tax profit (wynik finansowy brutto) plus labor costs plus depreciation. This specification fits in well with the changed milieu facing the worker controlled firms, namely, cost plus pricing no longer feasible, even for so-called monopolies, and the growing importance of marketing and profits with the elimination of subsidies and the gradual hardening of the budget constraint, captured by the inclusion of value added. Firms could be regarded as facing a two-step maximization problem: in the first step, value added is maximized; in the second, its distribution among wages, taxes (income, dividends, PPWW), investments, retained earnings and bonuses is made.

Regressions based on the above specification using a sample of 65 firms yielded the following conclusions on wage evolution (details in Annex IV):

- (i) The importance of the wage norm in wage determination steadily diminished through 1990, while that of value added ("disposable surplus") steadily grew. This fits the story that firms were initially uncertain about what the ETP would bring, and were therefore guided by the norm; but by the end of the fourth quarter of 1990, were anxious to consume the surplus available, as indicated by a rise in the wage bill value added elasticity from 0.19 in the first quarter to 0.58 for the year as a whole.
- (ii) There was a definite and statistically significant credit-wage link in the second half of 1990, albeit weak, the elasticity for the year as a whole being only 0.07. Thus, the relaxation of credit and lowering of interest rates may have contributed to the consumption of the unutilized norm during the second half of 1990; but given the small size of the elasticity, this would have probably taken place anyway.
- (iii) First quarter 1991 displays a similar pattern to that in 1990, with starting monthly wages having reached unsustainable levels owing to the consumption of the unused norm in the second half of 1990.

Figure 11

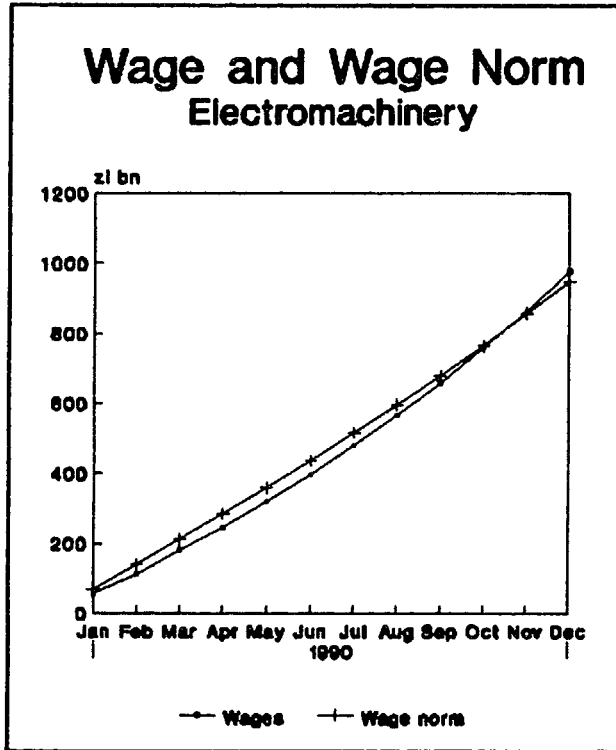


Figure 12

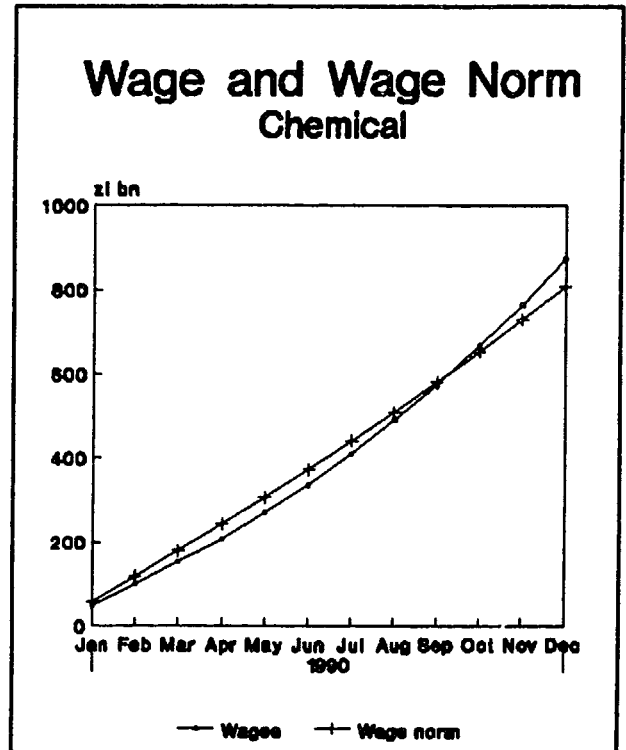


Figure 13

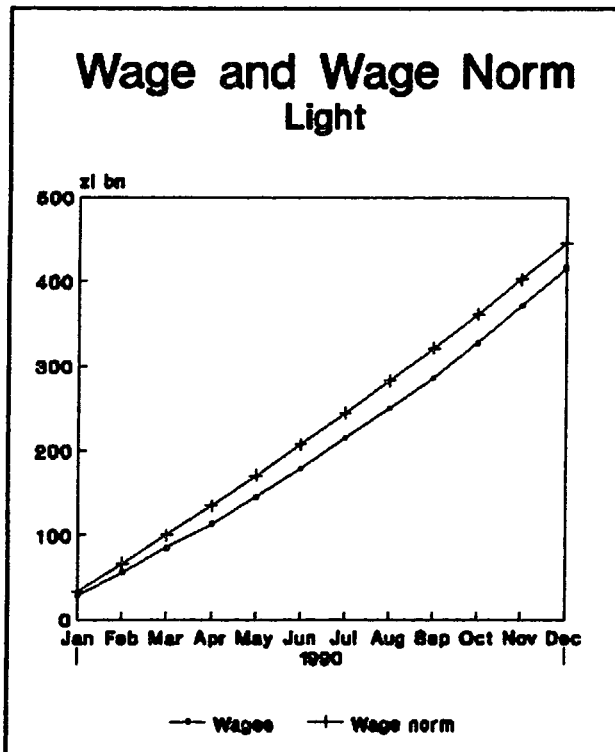
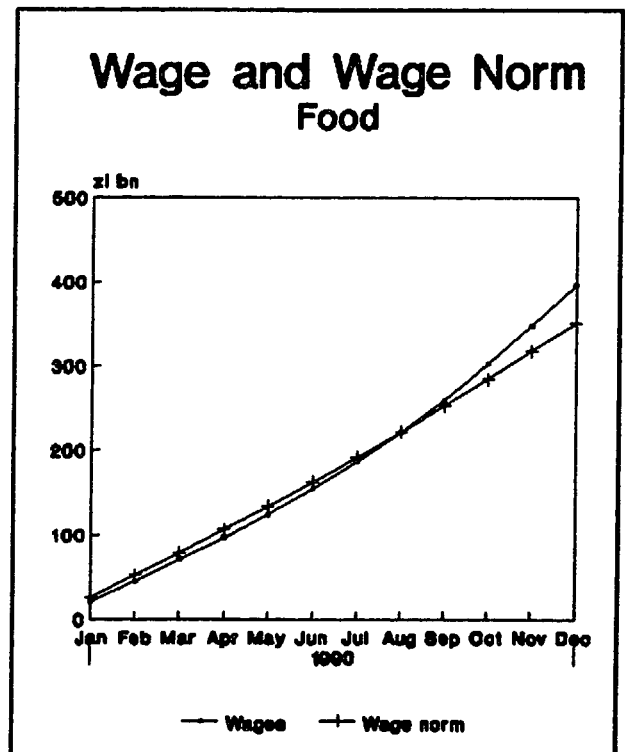


Figure 14



Employment

A major question in the response of enterprises to the ETP was whether they would lay off workers to reduce what was widely regarded as significant over employment. In fact, for the economy as a whole, employment reduction has considerably lagged output decline, resulting in falling productivity and in some sectors, rising unit labor costs.

The evidence from the sample of 75 firms conforms to this aggregate pattern. The big drop in output in 1990 was accompanied by visible reduction in employment, though on a smaller scale, reducing productivity. Employment reduction in 1990 ranged from a high of 17% in light manufacturing to 7-9% in metallurgy, chemicals and electromachinery, with food processing showing little reduction. These variations can be linked to the financial performance of sectors (good in food processing, poor in light at the other extreme), labor intensity (high in light) and technology (many processes in metallurgy and chemicals have labor requirements behaving as a step function).

Despite further output drop in 1991, the decrease in employment was modest, with electromachinery leading this time, showing a decrease of about 5% in 1991:I as a result of losing the Soviet market.

After an initial decline in unit labor costs stemming from the big real wage drop in January 1990, the trend was upwards. Light industry particular was plagued by rising unit labor costs despite shedding labor the most rapidly and having the lowest wages, indicating the depth of the recession hitting this sector. In 1991:I, unit labor costs increased dramatically for light and electromachinery.

Managers indicated that employment reduction has been mainly achieved through individual departures and not replacing retirees, i.e., through normal attrition. Group layoffs (which involve large severance costs) took place in 16 firms in the sample in 1990 and 16 firms in 1991 as well. The first to go have been part-time workers, recalled retirees, those close to retirement and undisciplined workers. As a result, group layoffs have met little resistance so far; but as the recession deepens and further cuts are necessitated, resistance might grow. As expected of worker controlled firms, labor sharing schemes have arisen. In 14 firms, the work week was cut to 3-4 days at least once and in 32 firms, workers were obliged to use up their vacation time during which they receive reduced wages. The highest incidence of this has been in the beleaguered light sector.

Regarding future prospects, the predominant feeling among managers was that employment would fall over the next 2-3 years and that privatization would lead to an acceleration in unemployment.

Effectiveness of Wage Policy

Inflation Control

This is clearly a macroeconomic issue and is therefore dealt with only in passing. In retrospect, the effectiveness of wage policy in containing inflation has been suspect. Although the ETP is commonly described as having two nominal anchors, the exchange rate and nominal wages, in fact the nominal wage path has been completely endogenous, being dependent upon the price path. In principle, owing to the endogeneity of wages, only the exchange rate could have

functioned as an anchor, the expectation probably having been that domestic prices would quickly converge to international prices, thereby leading to convergence of nominal wages. The initial slack in the exchange rate in 1990, high (monthly) frequency of wage adjustment and ability to accumulate the unused wage margin under indexation upset such calculations in the second half of 1990, resulting in a wage-price spiral.

Moreover, fiscal imbalance was not an issue in 1990, unlike 1991 and 1992. Under this circumstance, wage indexation (together with that of social money benefits) could create strong inflation inertia and dilute attempts to contain inflation.

Norm and Actual Real Wages Under Indexation

The starting norm wage bill for the ETP was obtained by taking the Sept. 1989 wage bill and adjusting it by a factor of 0.8 for fourth quarter 1989 inflation. With a factor of 0.3 to be applied to forecast Jan. 1990 inflation of 45%, this alone meant (assuming unchanged employment) a real wage reduction of 32% by Jan. 1990, the first month of the ETP. Table 3 is based on the sample: (a) on average, by Dec. 1990, the norm real wage fell by 50%; (b) the actual real wage exceeded norm wages by 32% in Dec. 1990, but representing nevertheless a substantial decline of 34% relative to Sept. 1989; (c) by March 1991, actual and norm real wages were on average closer to each other, with the Dec. 1990 gap significantly reduced.

Table 3. Actual and Norm Real Wages (Sept. 1989 = 100)

	December 1990		March 1991	
	Actual	Norm	Actual	Norm
Metallurgy	68.0	48.7	55.8	46.0
Electromachinery	65.3	51.0	49.7	47.5
Chemical	68.8	48.7	50.6	46.7
Light	48.5	47.5	41.3	44.4
Food	78.9	55.9	64.3	55.9
Total sample	65.9	49.8	51.9	47.2

It is tempting to believe that the extent of real wage reduction portrayed in Table 1 was unanticipated by the designers of the ETP. The scenario probably assumed was one where the fixed exchange rate would quickly lead to a convergence of the price level, hence of nominal and real wages. Assuming real wages should bear some relationship to productivity, it is difficult to believe that a 50% decline in productivity was anticipated between Sept. 1989 and Dec. 1990. However, a self-fulfilling prophecy could result if the reduction in real wages reduces aggregate demand, hence capacity utilization and productivity, as happened in Poland in 1990.

PPWW, Decapitalization and Dividends

PPWW payments exploded in the fourth quarter of 1990. As presaged by Figs. 10-14, there was strong correlation between profitability (metallurgy at the "high" extreme, light manufacturing at the "low") and incurring the PPWW.

Despite exceeding the norm, there was little evidence of decapitalization in 1990: as Table 4 asserts, the burden of PPWW on disposable cash was only 10% in 1990. Further, investments comfortably exceeded depreciation for the two sectors, metallurgy and food processing, which had the highest PPWW payments. The only exception was light industry, also the least profitable. However, this sector had the highest burden of dividends, the tax levied on founder's capital, as Table 4 shows. The light sector is remarkable, exhibiting cautious wage behavior, yet not fully replacing depreciation with new investments. Rather than use retained earnings for restructuring, most of these went for dividend payments, reflecting the inefficient (and inequitable) nature of this tax, which bears no relation to profitability.

Sectoral dispersion in the PPWW/disposable cash burden grew in 1991:I. The increases were particularly sharp for electromachinery and chemicals, both of which were deeply affected by the loss of the Soviet export market (electromachinery especially) and dollarization of CMEA prices. The range increased from 0%-38% in 1990 to 0%-73% in 1991 with two firms, both in chemicals, exceeding disposable cash.

Some evidence that enterprises are myopic is provided by the high level of average PPWW payments in dollars, especially significant for metallurgy and chemicals, both of which will need considerable investment for restructuring to lower energy consumption, improve technology and control pollution. It is unlikely that in a private, market economy such payments would be tolerated.

The last two columns contain a "catch-all" measure of decapitalization based on the claims on profit II or income before tax. These claims are income tax, dividend and PPWW. If the sum of these claims exceeds profit II, then the payment must cut into the depreciation allowance and reduce the resources available for investment and maintenance of existing plant and equipment. According to this measure, decapitalization occurred in light manufacturing and possibly, chemicals, in view of its capital intensity, in first quarter 1991. However, it was not an issue for the other sectors over the survey period.

Table 4. Some Indicators of Decapitalization

	PPWW/Disposable Cash (%)		Dividend/Net Income (%)		1990		IT+DT+PPWW /Profit II (%)	
	1990	1991:I	1990	1991:I	Investments/Depreciation (%)	PPWW per Enterprise (\$ mn)	1990	1991:I
Met.	13.09	11.02	10.96	17.51	166.6	4.200	52.4	57.5
Elec.	5.13	13.13	7.66	21.72	112.9	0.700	46.1	66.2
Chem.	9.35	18.25	22.19	58.35	114.7	1.690	56.7	94.3
Light	0.31	0.22	44.11	257.86	79.4	0.004	75.6	141.9
Food	13.71	14.46	2.43	2.10	192.6	1.331	47.4	50.6
Tot.	10.46	13.47	12.67	23.61	132.5	1.598	52.2	65.5

Notes: (1) Disposable cash is Profit II-Income Tax-Dividend + Depreciation.

(2) Net Income is Profit II-Income Tax.

Wages and Value Added

Although the evidence does not support the idea that workers are determined to raise wages at all costs, this could change as profitability declines. Given the continuous decline of the norm real wage so long as inflation persists, workers may feel justified in raising real wages above the norm and paying the PPWW (or incurring arrears) even if it means severely diminishing retained earnings. Out-of-sample behavior partly supports this view, with real wages rising strongly from July 1991 onwards despite the sharp fall in profitability and perhaps facilitated by the devaluation of May 1991, when the exchange rate anchor was relaxed for the first time since the start of the ETP.

Figs. 3-7 show that the share of wages in gross value-added increased alarmingly after falling in first quarter 1990.⁷ This upward trend is disturbing, capturing the fact that worker controlled SOEs have no particular incentive to maximize gross value added through cost minimization, product mix change or restructuring; but have full control on how it is disposed of.

HARD CURRENCY EXPORT PERFORMANCE⁸

Without doubt, the 40% rise in the volume of hard currency exports in 1990 was one of the stellar early achievements of the ETP. At the economy-wide level, two manufacturing sectors in particular, metallurgy and chemicals, displayed considerable export dynamism.

Why did hard currency exports increase so rapidly? Three basic hypotheses have been advanced: (a) the 46% devaluation of the zloty at the start of the ETP increased export profitability and hence, exports rose; (b) the export boom occurred mainly because firms attempted to offset declining domestic sales ("demand barrier") with higher sales abroad; (c) the increase in exports was a one-time structural shift in geographical composition following trade liberalization.

Drawing on the 10 metallurgy and 12 chemical firms in the sample (for which a complete data set was available and which accounted for a significant 22% and 33% of the respective economy-wide sector exports in 1990), this section traces changes in export profitability from the third quarter of 1989 to the first quarter of 1991. The increase in exports coincided with diminishing profits relative to domestic sales, suggesting that both the domestic demand barrier and a possible structural shift (hypotheses (b) and (c) above) played a role in the export boom. The main findings of this section are:

- (i) Exports rose in 1990 despite a falling profit differential with domestic sales. Surprisingly, this differential was the highest in the fourth quarter of 1989, rather than in the first months of the ETP, as one may have suspected.

⁷In Figs.3-7, gross value-added is everything excluding the darkly shaded portion of the bar chart (roughly, net sales minus materials and energy costs).

⁸This section focuses exclusively on convertible (hard) currency exports and ignores transferable ruble exports.

(ii) By the fourth quarter of 1990, 5 out of the 10 metallurgical firms and 1 out of the 12 chemical firms were making losses on exports, these numbers increasing to a staggering 8 and 5 respectively by the first quarter of 1991.

(iii) The average ratio of export to domestic sales peaked towards mid-1990, with a perceptible decline thereafter. While the initial boom was in response to weak domestic demand rather than higher profitability, as profitability fell and losses were incurred, firms restrained their export activity. The reason is that it pays firms to expand exports so long as the export price covers variable costs, even if export sales are less profitable than domestic sales. However, the moment losses are made on exports, one may expect reduced activity.

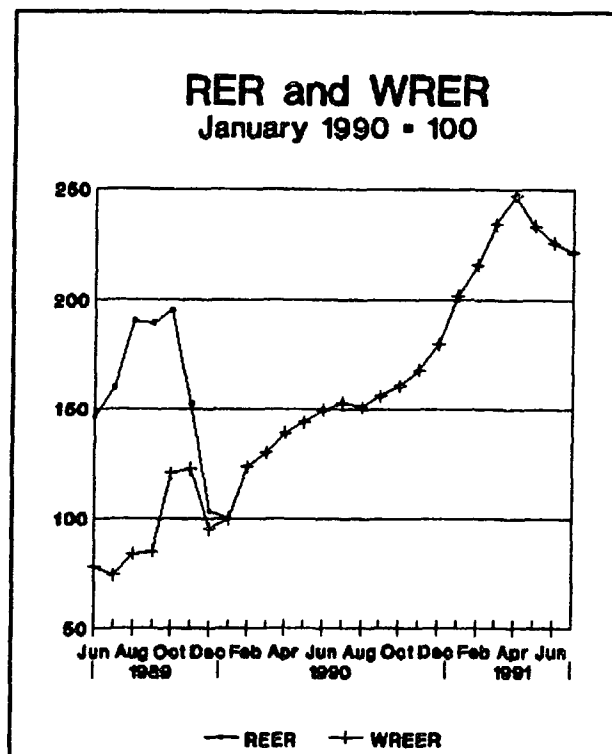
These findings suggest that the squeeze on export profitability as the result of export prices rising much more slowly than costs (at a macro level, the real appreciation of the zloty) will eventually lead to falling exports. One way of stimulating exports is through a much more aggressive exchange rate policy. However, this will work only if the increased enterprise surpluses following a devaluation are used for investment in energy and materials saving technology, thereby lowering variable costs. If, however, higher prices feed into higher wages, the effect will be neutralized. The evidence above showed that wages increase strongly with enterprise surpluses, and that the share of wages in value-added has been growing rapidly. Therefore, a more aggressive exchange rate policy will be effective only when combined with a counterbalance to wage pressures at the firm-level, and managerial compensation mechanisms that will lengthen the decision-making horizon of firms, discussed further below.

Real Exchange Rate, Export Profitability and Volume

Fig. 15 plots the real exchange rate (Polish CPI divided by trade-weighted, exchange rate adjusted trading partners' WPI) from June 1989 to June 1991. In January 1990, popular belief notwithstanding, the large nominal devaluation was accompanied by little or no real depreciation; in fact there was a small real appreciation when the RER is calculated at a weighted average of the free (20%) and official (80%) exchange rates to reflect enterprise dollar retention accounts in 1989, shown as WREER in Fig. 15. Thereafter, the real exchange rate steadily appreciated. Yet, hard currency exports increased 40% in volume in 1990 at the same time that real sales (industrial output) plunged 23%.

The upper panel of Table 5 gives the difference between export and domestic profitability ($p_e - p_d$), while the lower panel gives the ratio of export to domestic sales from the third quarter of 1989 to the first quarter of 1991 for the 10 metallurgy and 12

Figure 15



chemical firms referred to earlier.⁹ Focusing on the profitability differential, $p_e - p_d$, (a) automatically eliminates any bias in favor of exports resulting from inflationary gains on inventories as these would apply equally to domestic sales, and (b) similarly, while both metallurgy and chemicals were beneficiaries of implicit CMEA subsidies on energy and raw materials, this would not necessarily create a bias in favor of exports over domestic sales.

Table 5. Trends in Export Profitability and Volumes.

	1989:III	1989:IV	1990:I	1990:II	1990:III	1990:IV	1991:I
	Export Profitability-Domestic Sales Profitability (% pts)						
Metallurgy	6.8	11.9	-9.5	-14.6	-10.3	-8.0	-23.9
Chemical	31.2	34.7	13.4	5.0	3.2	0.2	-37.6
	Ratio of Export to Domestic Sales (%)						
Metallurgy	15.9	19.6	17.0	26.2	29.8	22.8	13.6
Chemical	26.8	35.7	48.8	76.8	64.8	67.5	45.5

The numbers in Table 5 are remarkable and confirm the suspicions generated by the real exchange rate graph: (a) export sales were more profitable in late 1989 than at any other point over the sample; (b) the profit difference with domestic sales fell steadily (chemicals) and erratically (metallurgy), with an abrupt drop in 1991:I, suggesting that while domestic prices could be adjusted to compensate for the dollarization of CMEA inputs, export prices were constrained by the nominal exchange rate anchor; (c) export sales as a ratio of domestic sales took off in 1990, partly because domestic sales were falling, but were distinctly weakening by late 1990.

The coincidence of rising export volumes with declining profitability is clear from Table 5. Regression results based on the 22 firms in this sub-sample (10 metallurgy, 12 chemicals) over the 7 quarters 1989:III-1991:I, are reported in Box 3.

Box 3: Export Boom, 1989:III - 1991:I

The regression was based on the following specification:

$$X/D = f(p_e - p_d, DD),$$

where the left hand side variable is the ratio of export to domestic sales and the explanatory variables are the profit differential and an indicator of economy-wide sector domestic demand (DD, or domestic sales deflated by the sectoral PPI). The following results were obtained (t-statistics in parenthesis):

$$X/D = 0.1873 (p_e - p_d) - 0.00052 DD$$

(1.18) (-2.01)

Rbar sqd.=0.52, S.E. of regression=0.61, Autocorr. of error=0.34.

⁹Firms reported the export P&L account separately, which enabled the calculation of export profitability. However, variable costs were not separately identified. Since export costs were given separately, the ratio of export to domestic sales by volume was approximated by the ratio of the respective costs, eliminating the need for firm-level price deflators.

Both variables in the specified regression (Box 3) have the expected sign; however, the coefficient on the profit differential is not significant at conventional levels, while that on domestic demand is. This result reinforces the view that the export boom of 1990 was largely stimulated by weak domestic demand. This does not mean that exports will not respond to increased profitability; only that such profitability did not increase in 1990 and therefore could not have been a factor in explaining the export boom.

EVOLVING TAX BURDEN

The dependence of the budget, and hence the stabilization program, on the performance of the SOE manufacturing sector was underlined by the collapse of tax revenues following the CMEA shock in the first quarter of 1991. Any discussion of tax reform, or indeed of optimal taxation, is clearly beyond the scope of this paper. The intention is only to make a few general observations based on sample evidence:

- (i) The tax burden per unit of sales fell, but rose per unit of value-added.
- (ii) The share of PPWW and dividends in total taxes increased from 16% in the second half of 1989 to 23% in the first quarter of 1991.

Fig. 16, based on the whole sample, depicts tax burden (turnover tax + income tax + dividends + PPWW - subsidies) as a percentage of sales and gross value added (crudely approximated by pre-tax profit + wage costs + depreciation). The difference in the trend should not come as a surprise owing to the erosion of value-added over the sample period.

Fig. 17 shows the changing structure of taxes, principally, a reduction in income tax and increases in the others. The growing share of dividends and PPWW is cause for concern because these payments are made from after-tax profits and are therefore predicated on profitability of firms. As profitability declines, so may the ability to collect these taxes.

Figure 16

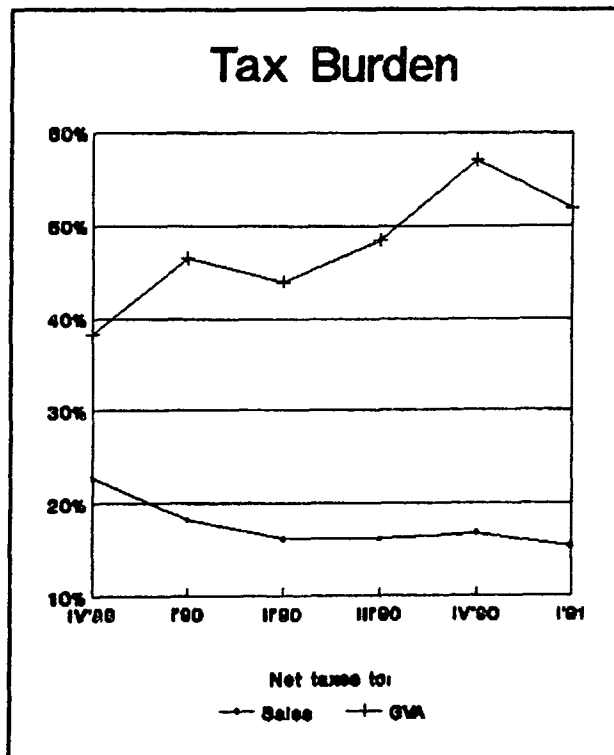
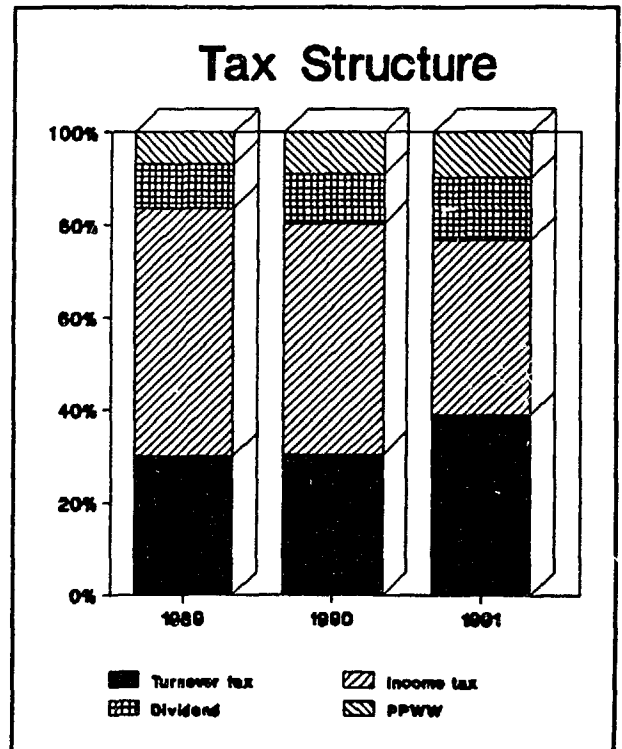


Figure 17



Real Exchange Rate, Wages and the Budget

The information on taxes combined with the earlier observations of falling export profitability, real appreciation of the zloty and short-run wage pressures presents a dilemma in relation to nominal exchange rate anchor-based stabilization programs. The success of such programs depends crucially on the speed and quality of the microeconomic response elicited. If this response does not materialize, then given the close dependence of the budget on SOEs, a fiscal imbalance could emerge that ends up threatening stabilization. This in turn might call for a relaxation of exchange rate policy to take the pressure off enterprises. This has been the case in Poland, and it points to the importance of paying attention early on, perhaps at the very start of the program to: (a) SOE incentives and governance; (b) reform of the banking system to steer resources in the needed direction; (c) and tax reform, all of which reduce dependence on the exchange rate as an instrument of change. To large extent, these issues were neglected in the early part of the ETP because the fleeting nature of the good results in 1990 was not recognized and this in part led to a significant underestimation of the size of the CMEA shock in 1991.

A possible response is to change course and adopt a more flexible and aggressive exchange rate policy; but as repeatedly cautioned above, this will bear fruit only when combined with a counterbalance to wage pressures and incentives to lengthen the decision-making time horizon of firms.

QUALITATIVE CHANGES IN FIRMS

The ETP involved moving overnight from a system of bargaining with central authorities about subsidies, special allocations of raw materials and central investments to one emphasizing macroeconomic stringency and price and trade liberalization. There were two basic changes for firms: (a) the emphasis shifted from production, the staple of the old shortage economy, to profits and marketing; (b) firms were increasingly unable to follow cost plus constant mark up pricing rules. This section focuses on the qualitative changes introduced as a result of the new economic regime. It is based largely on manager interviews and responses to the qualitative part of the questionnaire.

Organization Structure

Three forms of change were seen: splitting up of big SOEs; creating partnerships; and internal change.

From early 1990, in 20 SOEs in the sample, some units were spontaneously separated and transformed into independent SOEs (metallurgy 2, electromachinery 5, chemicals 3, light 5, food 5). In addition, 10 enterprises in the sample were already the product of deconcentration carried out (from above) in 1990 in meat and sugar production. Of the 20 where spontaneous deconcentration took place, 21 new units were created on the basis of distance of location from the main plant. Other criteria have included products not integrally connected with the main activity and units that were performing worse than average. Sometimes, managers of separated subunits had different ideas about the prospects and management of the units, this serving as the basis for separation.

A second form of change has involved creating partnerships and joint ventures to market the product or render auxiliary services (transportation, repair). Some of these partnerships were created in the late 1980s and are being dissolved because they are controlled by the former senior managers of the firms and are therefore perceived as "nomenklatura hideouts". The new ones are

created jointly with Polish and foreign private capital with the objectives of marketing and promoting sales domestically and abroad, including packaging the product; and provision of auxiliary services.

The third and perhaps most important change has been the shift in emphasis from production to marketing. Formerly, the number two in the firm was the deputy director in charge of production and technology. Now as an overwhelming rule, the number two position is given to the deputy in charge of either financial management or sales. There is also a general move to strengthen marketing, sales and customer service departments, and creation of export departments to reduce dependence on Foreign Trade Companies, who are responding by lowering their commissions. Another change at the top is a frequent merging of economics and accounting functions. Nevertheless, marketing remains weak and good accountants are hard to find, with many firms reporting vacant positions and trained accountants lured away to private sector jobs.

Much of the initiative for change comes from the new marketing and finance people, not the production and technology people. An important trend is the move to create product-based profit centers both to highlight the importance of product mix selection and impress upon the production staff the need to be able to sell what is produced.

In all 5 commercialized enterprises in the sample, the momentum for change was tangible, with commercialization seen as a good occasion for reorganization and streamlining.

Disposal of Redundant Assets

Out of 75 firms, 22 reported selling or leasing part of their productive assets, most frequently in electromachinery and light but rarely in the other sectors (recall Table 2 above). The share of total productive assets involved was small, between 1% and 5% and never exceeding 10%. The assets include means of transport (trucks, buses) small machinery and small self-contained production units, although disposal of the latter is limited; and buildings and office space. The limited scale of selling/leasing was attributed to: (a) presumption that demand will pick up; (b) fear on the part of managers that such action could lead to accusations of conflict of interest and hidden payoffs as such deals are usually concluded with the private sector; (c) asset revaluation as a result of inflation, leading to book values in excess of market values and reluctance to sell at a book loss. Whereas machinery and transport equipment were often sold, buildings were usually rented as office space or warehouses, not for production facilities.

The tendency to dispose of non-production related assets (health centers, holiday resorts, cafeterias, worker housing) was much stronger. Worker housing in particular represents a serious burden as such housing is not under the umbrella of state subsidies and workers pay rents comparable to or lower than those living in subsidized, cooperative housing. As a fraction of profits, such costs could be large. One example is provided by a firm owning 3000 flats involving monthly maintenance costs of about \$ 100 per flat per month. Many firms are anxious to get rid of worker housing, cafeterias and day care centers, but find no takers as municipal authorities do not have the means to maintain these even when the facilities are offered free. Although no more than 10% of total non-production assets were reported to have been sold or leased so far, this number being only rarely exceeded, the tendency is growing perceptibly.

Getting rid of self-contained production units and most of the non-production assets is a fast way of making enterprises leaner and more efficient; however, managers reported that processing and overcoming legal obstacles are time consuming.

Links with Customers and Suppliers

Until 1989, these links were largely centrally controlled through rationing, obligatory distribution through specified channels or else dictated by limited choice. Following the collapse of the former state-owned distribution channels, there are two moves afoot: first, to link up with new private wholesale traders and retailers; and second, to build up own sales and purchasing networks. Many firms have become aware of the importance of factory outlets and shops, which are seen as crucial in the present (mid-1991) liquidity-constrained environment.

Exports are viewed as essential for survival in view of the shrinking domestic market and the need for expanding sales in the presence of fixed costs. Polish firms are now keen on finding solid western partners who will help to upgrade the product and market it abroad. There is a new slogan: "To survive, we must export."

On the inputs side, there have been clear moves to switch suppliers based on cost, quality, terms of payment and reliability of delivery. In many instances, there has been a switch to western imports both from domestic suppliers and the former CMEA sources. The growing awareness of import price competition is illustrated by the remarks of some managers in the steel sector, who were consciously keeping their prices a little below the cif cost of imports. More and more, customer relations are being strengthened with many upstream enterprises even anticipating the requirements of their downstream counterparts, a far cry from the situation just a few months ago. Table 6 summarizes the responses of managers in this regard.

Table 6. Reasons Inducing Firms to Change Suppliers

Reason For Change	Change of Suppliers			
	Domestic to Foreign	Foreign to Domestic	Domestic to other Domestic	Foreign to Other Foreign
	Number of Firms (out of 75)			
1. Higher quality	25	1	22	13
2. Lower prices	26	14	42	20
3. Reliability of deliveries	18	3	15	7
4. Better service	2	2	—	2
5. Lower costs of transportation	1	10	12	1
6. Possibility of delaying payments	15	10	23	17

Links with Foreign Partners

Motivated by domestic recession, deepening financial and marketing problems and a distinct technological gap, SOEs have begun looking to a foreign joint venture partner as an instant solution. Of the firms in the sample, 68% reported long-lasting cooperation with foreign partners, 12% were in the process of establishing cooperation and 20% did not have any links with foreign partners. The least interest was expressed by food processing (meat and sugar production) owing to their comfortable position on the internal market.

Ties with foreign partners have traditionally taken the form of export-import, buying machinery and licensing of production, now considered insufficient. Solid partners are sought to start more extensive ties involving capital investment, introduction of modern technology and organization, and sales (Table 7 summarizes hopes and expectations of the firms). The managers feel that to elicit commitment, foreign partners must be given part ownership.

Nearly all the firms in the sample were visited by several potential investors. After preliminary contacts, however, the foreign partners either withdrew or decided to wait. Managers attribute the lack of enthusiasm of foreign partners to: (a) a desire to merely obtain competitive information from them; (b) the hope that as the situation deteriorates, Polish firms will become cheaper to buy out; (c) waiting for commercialization or privatization as a prerequisite.¹⁰

Polish firms see their attractions as follows: (a) well-qualified and relatively cheap labor force (mentioned in all sectors); (b) unutilized productive facility that is fairly modern (metallurgy and electromachinery; food processing having no unutilized capacity); (c) access to a large

¹⁰It is clearly important to ascertain the point-of-view of potential foreign partners, in particular what impediments/opportunities they see at the firm level; and what impediments are represented by the legal/regulatory framework.

national market with potential future access to the Soviet market; and (d), stressed in chemicals, less stringent pollution control than in the West.¹¹

Table 7. What Polish Firms expect from Foreign Partners

	Answers in %					
	Total	Metallurgy	Elec.	Chemical	Light	Food
1. Inflow of financial means	27.4	30.0	27.8	29.5	32.6	15.8
2. Inflow of modern machinery&equipment	19.8	21.3	7.6	17.6	16.8	36.8
3. Access to modern technology	21.3	28.8	24.0	24.7	13.5	15.8
4. Licenses	3.9	2.5	8.9	3.5	—	5.3
5. Introduction of modern organizational solutions	5.7	1.2	7.6	5.9	6.7	7.9
6. Introduction of modern informational techniques	2.4	1.2	2.5	1.2	—	7.9
7. Help in sales abroad	16.5	10.0	21.6	14.1	27.0	7.9
8. Improving qualifications of personnel	3.0	5.0	—	3.5	3.4	2.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Role of Managers

In the judgment of the team conducting this enterprise survey, managers are by far the dynamo for change within SOEs, workers playing more of a reactive, ratifying role. The picture that emerges of Polish SOEs is one of tension between managers and the Workers' Council, which manifests itself in three basic ways: emphasis on profits and marketing; slow adjustment of labor force relative to output drop; huge flexibility in real wages and more recently, downward flexibility even in nominal wages with workers willing to tighten the belt when necessary but expecting immediate compensation whenever the situation improves. Although the ideas for change originate largely from managers, they are legally subordinate to the Workers' Council, lack job security and do not have sufficient financial incentive to undertake the gigantic task of restructuring. To make matters worse, few managers have received any degree of formal training in modern management and marketing; and in any event, lack operating experience in a market system. There is need for a big investment in human capital, which must be treated as a public investment problem because the private sector will never have the incentive to impart training on the massive scale (some 100,000 managers) required because training is costly and managers can be lured away by other firms ("free rider" problem).

In short, (a) accountability and authority at the firm-level are vague. At the moment, neither principal nor agent is clearly defined; (b) firm-level incentives in terms of managerial job

¹¹Although one would expect that this will change, Polish environmental standards in many cases exceeding those in the EC.

security and profit-linked compensation are virtually absent; (c) there is need for training in marketing and finance on a large scale.

CONCLUDING REMARKS: MICROECONOMICS OF TRANSFORMATION

There is a natural temptation to measure adjustment exclusively by the financial bottom line, from which one would conclude that adjustment during the ETP has been dismal: the lack of effort during 1990 was masked by inflationary gains on inventories and the cushioning effects of enterprise dollar deposits and CMEA trade protocols. As evident from Figs. 3-7, margins have been shrinking and value added has declined steadily and then abruptly following the dollarization of CMEA trade.

There have been other worrying signs: labor shedding has been slow, leading to a rising share of wages in value added, with no apparent incentive to maximize the latter. Far from serving as an advocate of capital, the excess wage tax has functioned strictly as a penalty, being treated by firms as just another cost to be borne if affordable. The myopia of firms is confirmed not only by the willingness to pay large sums as the PPWW with no obvious attempts to maximize value added, but also by the virtual absence of long-term restructuring plans.

This absence finds its echo in the apparent unwillingness of "good" firms to borrow for restructuring and in the deficient role of banks, whose loans appear to be going to the least profitable firms saddled with rising finished goods stocks. This combination of the banks seemingly unable to influence resource allocation in the direction pointed by the market, and the absence of incentive on the part of good firms and their managers to assume additional responsibility, is a serious bottleneck to adjustment.

At the firm-level, the softening of the budget constraint in the guise of bank loans and at the more aggregate level, the unwillingness or inability to enforce bankruptcy triggers is bound to affect the credibility of the ETP and the incentive for deep restructuring involving energy savings, new products and markets and additional employment cuts.

The above summary of findings from the sample points to an important conclusion: that macroeconomic stringency and price liberalization, while necessary, are insufficient to induce firm-level change. The reasons are simple: (a) banks must do their share in enforcing the hard budget constraint; (b) the major initial adjustments needed are to save on energy and material consumption (the upward trend in material and energy costs as prices approached world levels is evident from Figs. 3-7), and to shed labor. Neither adjustment is in the interest of worker-controlled firms, the first requiring investments in updating technology, which is in conflict with short-term wage increases, and the second hampered by the natural reluctance to release labor (with a preference for pay cuts instead). The obvious solution is to change the incentive structure at the firm-level.

Microeconomics of the ETP

In its first two years, the ETP has concentrated on allocative efficiency in the goods market by getting relative prices right through trade liberalization and the fixed exchange rate. Factor markets for credit and labor received little attention.

The hope has been that "big bang" privatization would deal with incentive issues stemming from poor motivation and lack of clarity in firm-level accountability and responsibility.

Lastly, various triggers (at first based on arrears in dividend tax payments, extended in September 1991 to all arrears to the budget) were announced to deal with exit and bankruptcy; but the implementation process had not established credibility during the first two years of the ETP.

In the meanwhile, "big bang" privatization, hampered by legislative, institutional and implementation hurdles has not yet materialized; and the 1991 collapse of the enterprise sector has led to the emergence of a debate on industrial policy, oscillating between two extremes: leave everything to market forces; intervene on a case-by-case basis.

The sample findings reported in this study have a few clearcut implications for strengthening the microeconomic basis of the ETP, all based on the view that industrial policy should be designed to facilitate the transition to fully functioning markets by: addressing SOE governance in the transition to eventual privatization; speeding up the creation of factor markets for labor and capital; creating a favorable and welcoming climate for foreign investors; providing training and technical services to firms in marketing, finance and management; introducing tax reform and disseminating market information. Some of these issues are elaborated upon below.

SOE Governance in Transition to Privatization

The present self-governance structure, with the dominance of the Workers' Council, is in conflict with long-term restructuring and profit (or value added) maximization. The finding that managers are the source of change suggests that a richer concept of commercialization (in contrast to a temporary transfer to the Ministry of Privatization pending privatization, which leads to paralysis of action in the interim) needs to be developed, that will delegate power to managers at the firm level and empower them to make all operational and most strategic decisions without consultation; award them management contracts and link compensation to the long run value of the firm and its privatization; clarify ownership of lands, buildings and other assets. Firms should be divested of worker housing, vacation resorts, hospitals, schools and other non-production related assets and concentrate on their basic business. Commercialization should be speeded up not only to clarify accountability and responsibility at the firm-level, but also to pave the way for privatization and ease the way for foreign investors, who will feel more comfortable dealing with commercialized entities where ownership has been clarified. This is important, as foreign investors can bring with them the funds, and managerial, technological and marketing knowhow badly needed for restructuring, a lacuna fully recognized by SOE managers - recall Table 8.

Factor Markets for Credit and Labor

The sample evidence suggests that "good" firms do not want to borrow and instead of quitting, "bad" firms prefer to borrow and double the odds. The obvious solution to this adverse selection problem is to have better banking supervision and rely more on credit rating and business plan assessment to weed out the "bad" firms. Unless this is done, the necessary resource re-allocation and hardening of the budget constraint will not occur, the banking function then becoming a bottleneck to adjustment and the supply response. The participation of foreign banks will not only help with skills and competition in the banking system, but also provide a positive signal to foreign investors.

The present system of wage indexation has three disadvantages: (a) high frequency of (monthly) adjustment; (b) permitting carryover of norm, leading to "memory" in the price-wage relationship, hence inflation inertia; (c) perpetuation of firm-level wage setting, with wages being determined by individual firm gross value added rather than by a labor market, where skills and productivity play a role. However, with or without indexation, there are three important issues

suggested by the sample findings. First, how to counterbalance wage pressure and lengthen the decision-making time horizon, so that restructuring investments are not sacrificed for short-run wage increases; second, how to increase labor mobility; third, what to do with the increase in unemployment that will inevitably accompany any major restructuring effort.

Commercialization and the empowerment of managers, combined with a stronger role played by banks in making loan decisions in the context of restructuring and business plans will offer some counter pressure to wages. The important issue of labor mobility requires the creation of a housing market, at present non-existent. Lastly, much more thinking is needed for dealing with the unavoidable surge in unemployment that will accompany restructuring. The budget is already strained and it is not feasible to put displaced workers on the dole without leading to higher inflation.

Managerial Training

Despite the dynamism of managers, few have received formal training in modern marketing and management; and by definition lack operating experience in a market system. Exposure even to short, intensive courses could yield high returns, through those directly trained as well as through those who learn from them. This need for human capital is vast and as such, must be treated as a public investment problem, because the private sector has neither the resources nor incentive to impart training on the scale needed.

Tax reform

Serious thought should be given to relating dividends to profits rather than the historical share of the founders' fund in enterprise assets, which includes vacation resorts, hospitals, schools and other assets that are not usually linked with firms in market economies. However, such a change will be effective only as part of a comprehensive restructuring of SOEs, including commercialization; otherwise it may create a perverse incentive to pay even higher wages, lowering profits further, in a pre-emptive bid to escape profit-related dividends.

Monopoly and Industrial Organization Policy

Many empirical examples indicate that price monopoly power and monopoly profits are not serious problems in Polish manufacturing owing to import competition. However, much work can be done in terms of industrial organization, streamlining old kombinats based on size and employment, product compatibility and degree of vertical integration; and finding urgently a solution to the non-production related assets of large SOEs.¹²

¹²Absence of competition in services, (e.g. banking) is quite another issue, with anecdotal evidence suggesting oligopolistic behavior by banks. Once again, a good dose of competition from foreign banks would be highly effective.

The study focused on the biggest state-owned enterprises (SOE's) in 5 manufacturing sectors: (a) metallurgy; (b) electromachinery; (c) chemical; (d) light; and (e) food-processing.

The SOE's in question employ 1500-6000 workers, although some exceed 20,000. Their annual sales are in the region of \$100 m. or more. Products sold by these enterprises include pipes, rails, metal sheets, wire; machine tools, transformers, electric engines, railway carriages, refrigerators, bicycles; fertilizer, plastics, organic and inorganic chemicals; fabrics, clothes, hosiery, shoes and leather goods; meat products, sugar, processed fruit, chocolate, cigarettes. Vast majority of the enterprises are typical, traditional state-owned enterprises with powerful workers councils, two (or more) trade unions and a management, that is legally subordinate to the workers council. A handful of the investigated SOE's were (at the time of the study) joint-stock companies with sole ownership of the state, resulting in abolition of workers councils and freedom from the dividend tax. The enterprises were located all over Poland, both in the big industrial centers (Upper Silesia, Krakow, Warsaw, Wroclaw, Poznan) and smaller cities (South-East Poland, Szczecin, Torun, Bydgoszcz, Radom, Piotrkow and many more).

The plan was to cover 75 enterprises. Because of the deep organizational changes in the manufacturing sector and changing sales patterns in the last two years, the last published edition of Lista 500 (from 1989) was taken as a reference point, the list classifying Polish enterprises according to different criteria. The 21 biggest firms by sales from each sector were taken in anticipation of lack of participation of some firms, the complete reorganization of others, and even the disbandment of some. Roughly 95 enterprises were approached, 77 successfully, i.e. a full or almost full set of data were obtained.

In metallurgy, information was collected on 15 enterprises from both ferrous and non-ferrous sector, covering 45% of the total employment in the SOE metallurgy sector as of Dec. 1989. In chemical industry, 15 enterprises from all main branches of the sector (both organic and non-organic chemistry) were covered, accounting for 32% of SOE chemicals sector employment as of Dec. 1989. In light industry, 15 enterprises covering all main branches of textile and leather industries were included (10% of employment). In food-processing sector, the situation was more difficult, as the biggest firms in 1989 were mainly in meat-processing and sugar production. The sample was supplemented with the leading chocolate producer and biggest fruit-processing enterprise (8% of employment). All in all, the samples from the above four sectors are highly representative of big enterprises in these sectors. The data obtained from 16 electromachinery firms cover a whole spectrum of branches (9% of employment). However, owing to high variance within this sector, the vastly different fortunes of the consumer goods producing and producer goods producing parts of the sector, and a particularly significant impact of the CMEA shock on separate branches of electromachinery, it is difficult to claim representativeness for the sample in this study.

Data Description: The data set from each enterprise comprised statistical information for the period June 1989 - May 1991 and answers to a questionnaire probing qualitative changes in the firm.

The statistical information covered: monthly information on value of sales, costs of sales, subsidies, turnover tax, extraordinary gains and losses, gross profit, tax payments, net profit, inventories (total and divided into inventories of raw materials, work-in-progress and finished goods), cash balances, credit outstanding, interfirm credit (payables and receivables), dollar deposits, employment, wage bill and popiwek norm - a total of 42 variables; quarterly information

on total costs incurred, structure of costs, exports (both to CMEA and non-CMEA areas) and their costs, imports (not available in many firms) - a total of 24 variables; yearly information on value of fixed assets, investment expenditures, profit distribution, tax obligations and tax arrears - a total of 36 variables.

The questionnaire asked questions about the estimated volume of sales, export sales in 1990-91 (in physical terms), price policy, inventory management, organizational changes, relations with banks, credit policy, competition, employment strategies, short-term and longer-term prospects for the firm, and different aspects of adjustment behavior in the firms. Managers were also asked about the social situation in the enterprises. The questionnaire consisted of about 50 questions, mainly of descriptive character.

Data collection process: The researchers visited every enterprise at least twice. During the first visit, the managers (or the chief accountants, or both) were informed about the purpose of the study and the scope of information requested. The visits often included a tour of the production facilities.

A second visit after some time (typically after 2 weeks) was arranged, during which the managers commented on their answers in the questionnaire and the statistical forms were checked. In virtually all cases the prepared statistical data (reported to GUS as such) had some serious mistakes that the researchers tried to correct. Most of the data were easily available in the SOE's, but some had to be specially prepared. Problems arose when firms underwent organizational changes (e.g., "deconcentration"), as the information from different periods was not comparable. In most cases, the problem was overcome and data were obtained for comparable units reflecting the reorganization, with the exception of 3-4 firms, for which some of the data had to be skipped.

The visits and prolonged conversations with the SOE managers provided a unique opportunity to learn about the opinions and perceptions of the managers, as well as changes in their behavior.

The data collection process, including pilot testing of the questionnaire followed by subsequent revisions, was completed over May 15 - July 31 1991, and even in this short period of time, changes were observed in the situation and mood of enterprises. As time went by, it became harder to win cooperation from managers, who often expressed disappointment and frustration with the economic policy pursued. Sometimes, firms were not ready to disclose certain information because they feared competition, and because they generally became more conscious about the value of economic information.

Firms need a certain permanent stock of working capital (which is rolled over) to support a given flow of output. This need increases as variable costs increase and as the flow of output goes up. For example, a firm may require an equivalent of 1.5 months' variable costs in working capital (raw materials, work-in-progress, finished goods stocks) to support a given level of production. It may be regarded as solving the following problem, where it is assumed for simplicity that the firm is a monopolist:

$$\max_q \{p(q)q - vq - iW - F\},$$

where q is output (flow), p is price, v is unit variable cost (excluding interest), i is the interest rate (scaled for the period q is being selected, for example, annual output means the annual interest rate is taken, if q is monthly output, then i is the monthly interest rate), W is working capital and F is fixed costs. Further, W can be related to variable costs by writing $W = kvq$, where k is similarly scaled to the time period for q . This yields the formulation $\max \{p(q)q - v(1 + ki)q - F\}$. The first order condition can be massaged to yield:

$$\frac{p(q)(1 - 1/\epsilon) - v}{v} = ki, \quad (1)$$

where ϵ is the elasticity of demand. For a horizon of one month (Jan. 1990), $k=1$ may be a good approximation. The LHS of this equation looks surprisingly like the mark-up over costs net of interest and suggests that this mark-up is being equated with the interest rate. In other words, a level of output q will be chosen such that the mark-up at the margin equals the interest rate on working capital. Monopoly is not essential to this result. A competitive producer would merely require that $p \geq v(1 + i)$, or $((p-v)/v) \geq i$.

In extreme terms, the problem faced by enterprise managers in January 1990 could be described as a choice between maintaining real production levels with highly uncertain profit and incurring 50%-72% in interest on working capital or shutting down production and paying off working capital thereby making a marginal return of 50%-72%, this being the opportunity cost of producing. Managers decided to what extent to produce and to what extent to retire working capital. Needless to say, there was considerable uncertainty about the demand curve, elasticity of demand and the rise in price of inputs.

Eq. (1) says that rather than compare the interest rate with inflation, managers compare it with the mark-up over costs. Depending upon how v changes, one can have a situation where the price rise comfortably exceeds i , yet the mark-up falls. In other words, firms may not wish to borrow even if the real interest rate is negative. According to this view, output is likely to fall more where demand is extremely elastic and input costs rise more.

Restructuring and Liquidation efforts Annex III

The Polish state owned manufacturing sector consists roughly of about 3000 enterprises. For about 1800 mainly big firms, the core of Polish manufacturing, the Ministry of Industry and Trade (MOIT) is the founding organ, the rest being in the domain of the regional authorities.

Arrears to the budget could trigger an automatic reaction of the founding organ to initiate restructuring or liquidation of an enterprise. In principle, if an enterprise firm does not pay the dividend for three months, it is subject to such procedure. Effective September 1, 1991 failure to pay any taxes for three months makes the firm eligible for restructuring or liquidation.

If a firm becomes "eligible" it can either be restructured or liquidated. Restructuring involves nominating a new (provisional) managing director, dissolving the Workers' Council and adopting a program of restructuring. It is assumed that three months is enough to implement the program. If the situation does not improve, the firm is put in a state of liquidation. In this process, the assets of the enterprise in question are sold and the proceeds used to repay debt, any remainder going to the state or put into a joint-venture. As a matter of fact, liquidation is perceived as a kind of deep restructuring rather than literal erasing of the unit. The latter happens when a firm is declared bankrupt with no capacity to repay debts by immediate selling of assets.

The rapidly deteriorating financial position of the industrial enterprises in 1991 was reflected in growing tax arrears, bank debt servicing problems and rising inter firm credit arrears. Data as of August 10, 1991 showed that 718 SOEs (from the group of 1800 big firms) had some arrears to the budget. About 70% of tax arrears were accounted for by unpaid popiwek, about 14% by dividends, 8% turnover tax and 8% income tax.

142 firms had not paid taxes for six months (from February to July) and 367 for three months (May - July). The dividend tax was not been paid on time by 461 enterprises. In sum, the number of firms needing some kind of action on the part of the founding organ was considerable. SOEs appeared effective in obtaining permission to postpone tax payments. The permission is obtained from the local treasury chamber upon a recommendation from the founding organ, stating for example that the difficulties of the enterprise are transitory.

Against this background, the number of enterprises declared by the banks as having lost "zdolnosc kredytowa" - creditworthiness - was modest, only 241 manufacturing firms at the end of July 1991. It must be remembered that banks (also state owned) are extremely reluctant to revoke creditworthiness as long as there is even a slight chance that firms will repay some of their obligations.

At the time, MOIT was directly involved in 126 restructuring cases, a big number to handle but only a small subset of the total number of firms in perceived difficulty. As of September, the 126 firms had been dealt with as follows:

- 44 firms were in a state of liquidation because of the deep and prolonged inefficiency,
- 18 firms were expected to be liquidated,
- 6 firms were declared bankrupt,
- 1 firm was negotiating with its creditors,
- 25 cases were being reviewed without final decision.

In most of the remaining 30 cases, the Ministry decided not to intervene, with only 3 firms starting a restructuring procedure. To intensify the process, the Industrial Development Agency had prepared the next group of 20 firms to restructure or liquidate. Only two firms had

been liquidated as a consequence of unviable economic condition; several liquidations had taken place (up to 200 cases) under the Privatization Law of 13 July 1990, to enable ownership changes.

A list of 26 enterprises meant for liquidation in May 1991 consisted of 8 units from electromachinery, 6 from light, 5 from minerals, 4 from mining and 2 from wood and paper. The list of 126 firms (from September) showed similar distribution, with electromachinery represented by 54 firms and light industry by 25 firms, with other sectors represented by 2-9 firms. In electromachinery, which is by far the biggest part of the Polish manufacturing, 10 firms producing agricultural machines and 15 firms from the electronics and precision industry were in trouble. In both cases, economic problems seemed severe, the first producing for the agricultural sector suffering from a severe liquidity crisis, the second heavily oriented towards CMEA markets. In light industry, woollen mills were heavily represented (10 firms). From other sectors the number of big firms was small, with most firms in question being small units or rendering auxiliary services to the main industry (designing bureaus, "research and production" centers, etc.)

Liquidators are likely to face the following potential difficulties:

- (i) the process of liquidation could be costly and exceed the financial resources of the enterprise in question. The only source of money is the sale of assets, as the banks are not willing to extend any credits. The severance payments alone pose frequently an insurmountable barrier for the firms, that usually lack money even for wages. Additionally, firms have to pay many social benefits to the workers on maternity leave or sick leave. The proceeds from asset sales are limited and frequently sequestrated to pay back taxes.
- (ii) the demand for assets is limited and the supply growing rapidly. Prices asked are frequently too high as they result from book values and do not take into account market prices. In the meantime, the debts of the liquidated enterprise keep mounting.
- (iii) to sell the assets, legal questions connected with the land ownership have to be cleared up, which is extremely time-consuming.

The limited number of restructuring and liquidation efforts undertaken so far can be explained both by the lack of necessary human capital on the part of the founding organs and financial resources to cover the costs of the procedures. Postponement is risky and could lead either to a massive, unmanageable collapse or the continued deterioration of firms resulting in their growing indebtedness, waste of resources and inefficiency.

Wage Indexation During the ETP and Regression Results Annex IV

The scheme may be defined by two equations. The first gives the evolution of the wage norm:

$$(i) \quad w_t^* = w_{t-1}^* (1 + \alpha \pi_t),$$

where w_t^* is the wage norm in month t , w_{t-1}^* is the norm in the previous month, α is the indexation coefficient (usually less than 1, on average about 0.6) and π_t is the inflation rate in month t .

The second equation specifies that the sum of actual monthly wages should not exceed the sum of norm wages up to that month. If the sum of norm wages ("cumulative norm") is exceeded, a tax penalty with highly progressive rates (PPWW) is levied. In 1990, the total wage bill was used as the criterion while defining norm wages. In 1991, norm definition was based on average wages (see Blanchard and Layard (1991) for more details).

Given an initial condition and by successive substitution into equation (i) above, the norm real wage in month t is given by:

$$\frac{w_t^*}{p_t} = \frac{w_0^*}{p_0} \prod \frac{(1 + \alpha \pi_i)}{(1 + \pi_i)},$$

where the identity $p_t = p_0 \prod (1 + \pi_i)$ has been used. It is obvious from this equation that so long as the indexation coefficient is strictly less than 1 and inflation persists, the norm real wage will continuously decline.

The regressions were based on the model (details in Pinto (1992)):

wages = $f(\text{wage norm, gross value added, increase in credits})$, or:

$$W = f(WN, GVA, DCR),$$

(+) (+) (+)

where W and WN refer to cumulative actual and norm wage payments respectively; GVA is (profit II + depreciation + labor costs), profit II being operating profit, or profit before corporate income tax; and DCR is the change in credits from banks.¹⁵ Profit II includes all "paper" profits made by firms in 1990; it is reasonable to assume that workers would not be too concerned about the niceties of inflation accounting while setting wages. The preceding specification also fits in well with the changed milieu facing the worker controlled firms, namely, cost plus pricing no longer feasible, even for so-called monopolies, and the growing importance of marketing and profits with the elimination of subsidies and the gradual hardening of the budget constraint. Firms could be regarded as facing a two-step maximization problem: in the first step, GVA is maximized; in the second, the distribution of GVA among wages, taxes (income, dividends, PPWW), investments, retained earnings and bonuses is made.

Owing to the cumulative nature of the wage norm, "nested" regressions based on the above model were run to examine wage evolution over the successive quarters (cumulatively) of 1990; and for the first quarter of 1991, based on a complete sample of 65 firms. Annex Table 1

¹⁵The following claims exist on profit II: income tax; dividends; PPWW; retained earnings; wage bonuses.

summarizes the regression results, while Annex Table 2 contains elasticities of the wage bill with respect to the explanatory variables.

Annex Table 1. Regression Results

Dependent variable: wage bill

Period	Explanatory Variables				Adj. R ²	F-stat
	Constant	Wage Norm	Value Added	Credits		
1990:I	506	0.67@	0.02@	0.00	0.96	510.45
1990:I-II	4391@	0.41@	0.04@	0.00	0.91	221.27
1990:I-III	8545@	0.16@	0.07@	0.09@	0.92	248.36
1990:I-IV	13978@	0.09*	0.09@	0.07*	0.91	207.29
1991:I	1339	0.71@	0.05@	0.00	0.95	389.17

Notes: @ denotes significance at 1% level

* denotes significance at 5% level

Rest are statistically insignificant

Annex Table 2. Wage bill elasticities
(calculated at mean values)

Period	Wage Norm	Value Added	Credits
1990:I	0.77	0.19	0.00
1990:I-II	0.46	0.34	0.00
1990:I-III	0.17	0.48	0.09
1990:I-IV	0.10	0.58	0.07
1991:I	0.69	0.23	0.00

Sectoral Graphs on Real Sales and Finished Goods Stocks Annex V

Figure 18

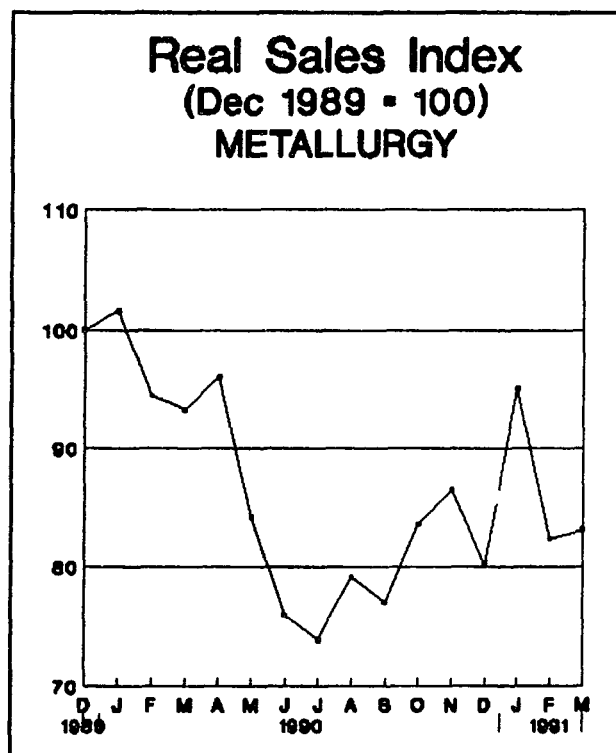


Figure 19

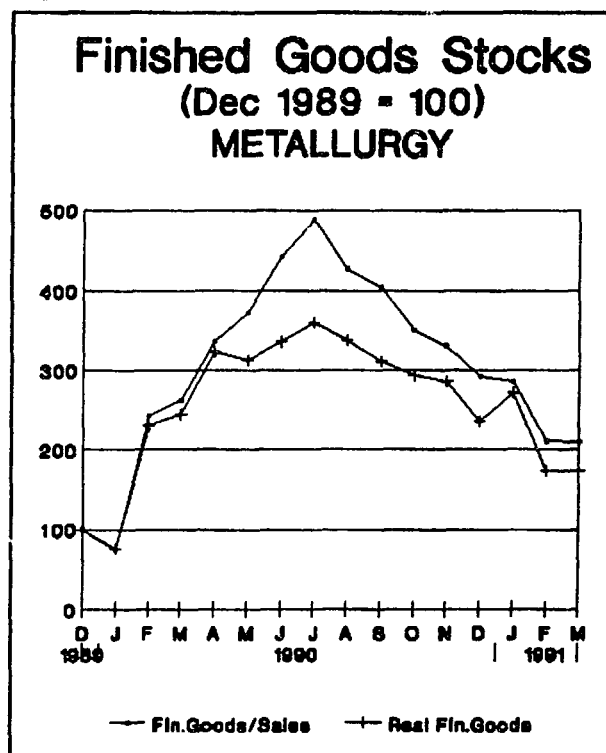


Figure 20

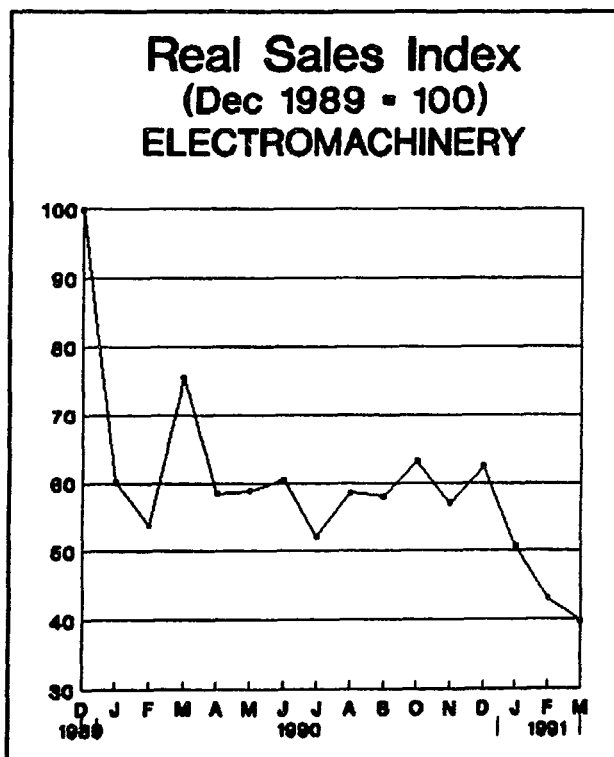


Figure 21

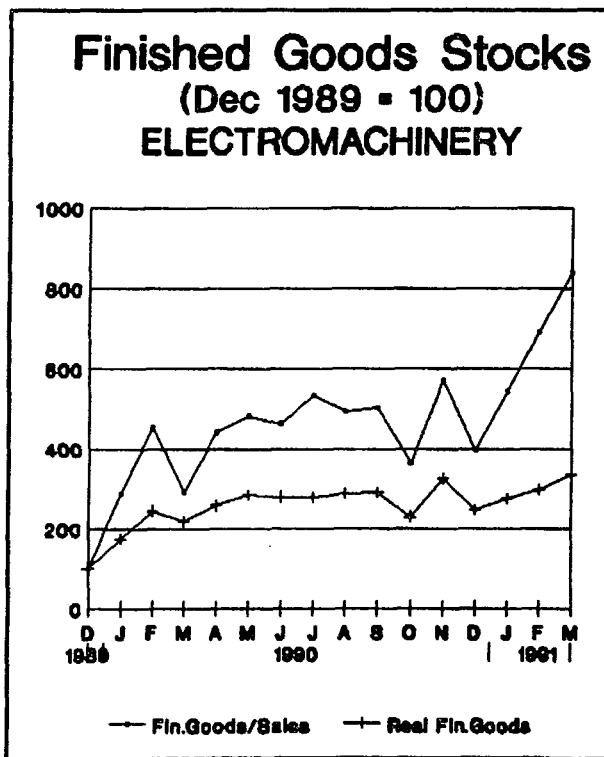


Figure 22

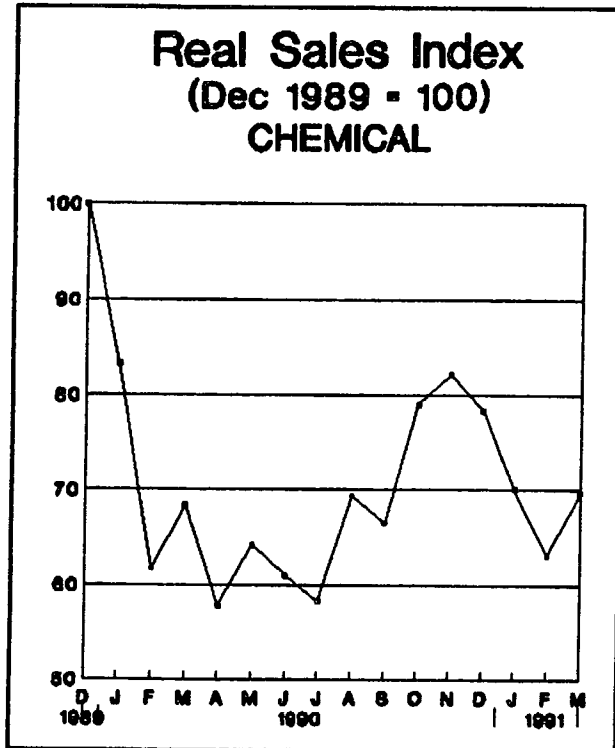


Figure 23

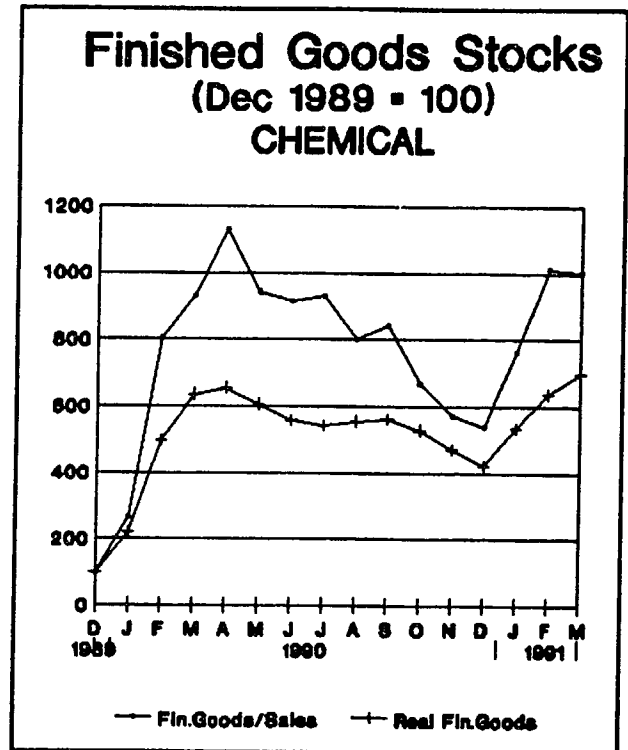


Figure 24

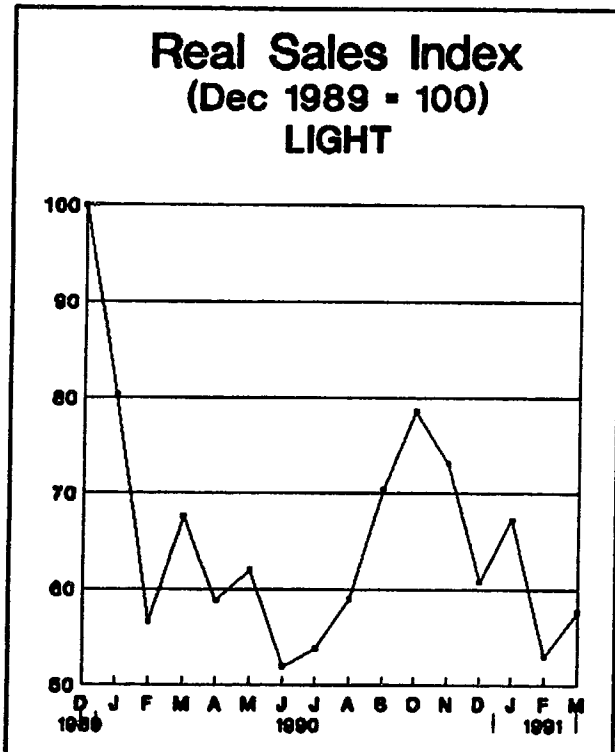


Figure 25

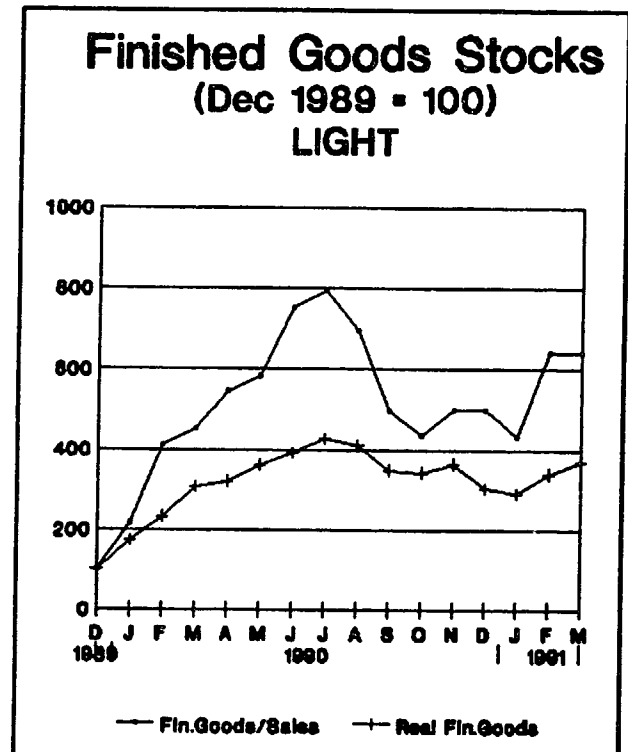


Figure 26

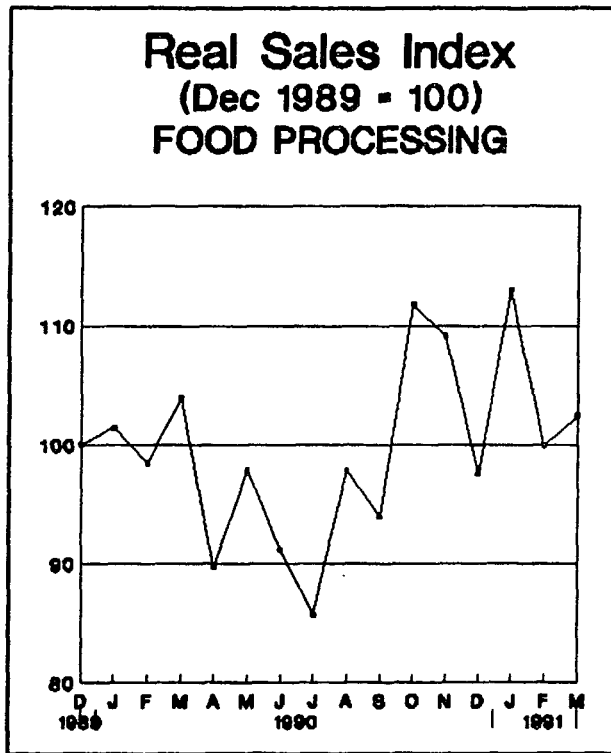
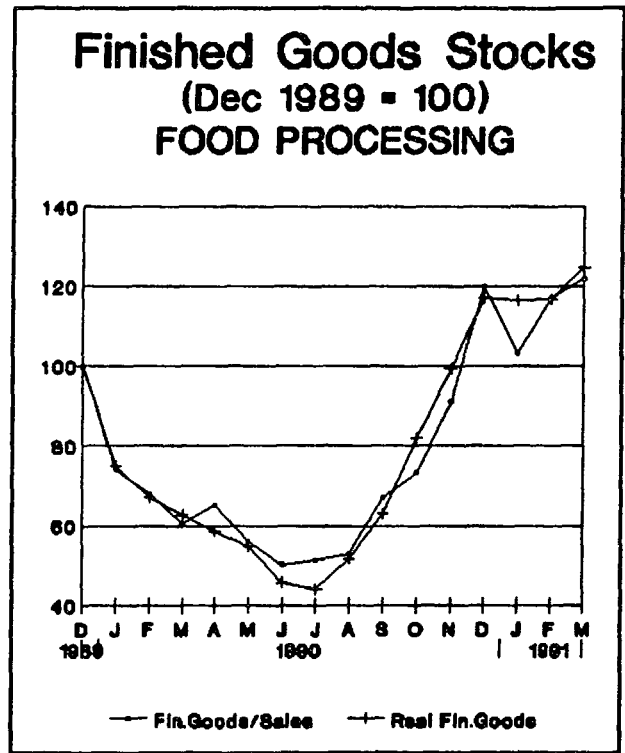


Figure 27



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